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Huntsville, AL 35816-1822

**RE: Final, Rev. 1 Programmatic Environmental Assessment for the
Implementation of the Facilities Reduction Program and Defense Environmental
Restoration Program, Picatinny Arsenal, New Jersey
Contract Number W912DY-10-D-0024, Task Order Number 0006**

Dear Mr. Nohrstedt:

Innovative Technical Solutions, Inc. (ITSI) is pleased to submit the Final, Rev. 1 Programmatic Environmental Assessment (PEA) for the Implementation of the Facilities Reduction Program and Defense Environmental Restoration Program, Picatinny Arsenal, New Jersey.

This document has been prepared in accordance with the scope of work, the approved Initial Scope of Work Planning Package (ISOWPP), and the ISOWPP scoping meeting held on July 7, 2011. Responses to comments received from the Draft, Rev. 1 PEA submitted on November 29, 2011, and from the Final, Rev. 0 PEA submitted on December 19, 2011 are also included.

Please don't hesitate to contact me at (678) 592-9015 if you have any questions regarding this submission. Thank you for your time and support on this important project.

Sincerely,

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Jeff Fournier
Innovative Technical Solutions, Inc.
Senior UXO Project Manager

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PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

Implementation of the Facilities Reduction Program and Defense Environmental Restoration Program at Picatinny Arsenal, New Jersey

FINAL, Rev. 1

Prepared for:

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Task Order Number: 0006

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LIST OF ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-containing Material
ASHERA	Asbestos Hazard Emergency Response Act
APE	Area of Potential Effect
AR	Army Regulation
ARDEC	Armament Research, Development and Engineering Center
Arsenal	Picatinny Arsenal
BMP	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dB(C)	Decibel (C-weighted)
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DoD	Department of Defense
DPW	Directorate of Public Works
E&SCP	Erosion and Sediment Control Plan
EIS	Environmental Impact Statement
EM	Engineering Manual
EO	Executive Order
EPA	U. S. Environmental Protection Agency
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
ESP	Explosive Site Plan
ESQD	Explosive Safety Quantity-Distance
ESS	Explosives Safety Submission
ESZ	Explosives Safety Zone
EUL	Enhanced Use Lease
°F	Degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FRP	Facility Reduction Program
ft	Foot (feet)
FW2-NT	Freshwater-2 Non-trout
HAPs	Hazardous Air Pollutants
I	Interstate
IAP	Installation Action Plan
ICP	Installation Contingency Plan
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ISC	Installation Spill Contingency
LBP	Lead-based Paint
lf	Linear Feet

LRC	Long Range Component
LUCs	Land Use Controls
MC	Munitions Constituents
MCE	Maximum Credible Event
MDAS	Material Documented as Safe
µg/m ³	Micrograms per Cubic Meter
MMRP	Military Munitions Response Program
mph	Miles per Hour
MPPEH	Materials Potentially Presenting and Explosive Hazard
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NG	Nitroglycerine
NHPA	National Historic Preservation Act
NJAAQS	New Jersey Ambient Air Quality Standards
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxide
NPL	National Priorities List
NRHP	National Register of Historic Places
NRM	Natural Resources Manager
NSR	New Source Review
NWI	National Wetlands Inventory
O ₃	Ozone
ODA	Open Detonation Area
ORM	Other Regulated Material
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
Pb	Lead
PCB	Polychlorinated Biphenyl
PCE	Perchloroethene / Tetrachloroethene
PEA	Programmatic Environmental Assessment
Picatinny	U.S. Army Picatinny Arsenal, New Jersey
PM _{2.5}	Particulate Matter with an Aerodynamic Particle Size less than 2.5 Micrometers
PM ₁₀	Particulate Matter with an Aerodynamic Particle Size less than 10 Micrometers
ppm	Parts per Million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RDX	Cyclotrimethylene Trinitramine
RPMP	Real Property Master Plan
SAR	Species at Risk
SARA	Superfund Amendments and Reauthorization Act
sq ft	Square Foot or Square Feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SOP	Standard Operating Procedure
SR	State Route

SREC	Sussex Rural Electrical Cooperative
TCE	Trichloroethene
tpy	Tons per Year
TSCA	Toxic Substances Control Act
TSP	Total Suspended Particles
U.S.	United States
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventative Medicine
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance
VEC	Valued Environmental Components
VOC	Volatile Organic Compound
WWII	World War II

SIGNATURES AND APPROVAL

Programmatic Environmental Assessment for the Implementation of the Facilities Reduction Program (FRP) and Defense Environmental Restoration Program (DERP) at Picatinny Arsenal, New Jersey

U.S. Department of the Army
U.S. Army Armament Research, Development, and Engineering Center
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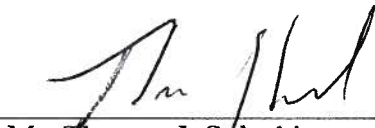
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EXECUTIVE SUMMARY

Introduction

This Programmatic Environmental Assessment (PEA) is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; 40 Code of Federal Regulations (CFR), Parts 1500-1508, the Council on Environmental Quality (CEQ) regulations implementing NEPA; Army Regulation 200-1, Environmental Protection and Enhancement; and 32 CFR Part 651, Environmental Analysis of Army Actions. This PEA provides NEPA analysis and documentation for the Proposed Action, which is to assess, remediate, and/or demolish 104 buildings located on U. S. Army Picatinny Arsenal, New Jersey (Picatinny or Arsenal).

It is important to note that a PEA is a document of broad and general scope. It must be flexible; it is not a fixed blueprint. While forms of remediation and their potential impacts are presented in the PEA, the programmatic approach allows for some flexibility in the determination of the remediation approach for different components of the Proposed Action. It is possible that aspects of the Proposed Action might be refined within the scope of the analysis presented in this PEA; Picatinny staff will review demolition and remediation actions considered in the future as part of the Proposed Action to ensure that they fit within the scope of the Proposed Action and analysis within this PEA. If the demolition or remediation is determined to fall outside of the scope of the Proposed Action discussed in this PEA, then Picatinny staff would conduct additional environmental review.

Purpose and Need

The purpose of the Proposed Action is to assess, remediate, and/or demolish 104 buildings at Picatinny. The buildings slated for remediation and/or demolition are spread throughout the installation and have a varied history of use.

The buildings have been unused for various lengths of time ranging from several years to decades. The buildings are in various stages of disrepair, and in some cases, the structural integrity of the buildings is poor, causing potentially hazardous conditions. As a result of manufacturing operations in the subject buildings over many decades, the potential for contamination in building interior, exterior, and equipment exists. Demolition would remove potential hazards associated with these buildings, including hazards from asbestos, other regulated material (ORM), explosives contamination, and structural condition.

Proposed Action

The Proposed Action is to implement the Facilities Reduction Program and the Defense Environmental Restoration Program at Picatinny Arsenal. The Proposed Action includes assessing, remediating, and/or demolishing up to 104 buildings at Picatinny. By examining the buildings' usage history, it has been determined that 82 of the buildings have a history of explosives use.

The 82 buildings would be assessed for explosives contamination and, where necessary, remediated. The remaining 22 buildings have no history of explosives use and would be demolished by conventional means after removing asbestos-containing material (ACM) and ORM by a demolition contractor.

Proposed activities under the Proposed Action would include debris removal; site assessments for ACM, ORM, and material potentially presenting an explosive hazard; remediation (managing debris and conventional wet demolition or burning in place, building demolition); and disconnection of utilities.

Alternatives Considered

The No Action Alternative and the Proposed Action are the only alternatives described in detail within this PEA. Although other alternatives were considered, the Proposed Action is the only one that meets the screening criteria established by Picatinny Arsenal officials. The No Action Alternative serves as a benchmark against which the Proposed Action can be evaluated. Under the No Action Alternative, current projects would continue to develop as planned and the action proposed in this PEA would not be taken. No remediation and demolition of the identified buildings in disrepair would occur at Picatinny under the No Action Alternative. Potentially hazardous conditions in these buildings would remain, and the areas occupied by the buildings would not be returned to their natural setting. Structural and explosives hazards would remain in place.

Environmental Consequences

The PEA evaluates potential impacts of implementing the Proposed Action and the No Action Alternative. It was determined that several Valued Environmental Components (VECs) would not be affected by implementing the Proposed Action. Those VECs include airspace, energy, noise, socioeconomics, environmental justice, infrastructure, and recreation.

The Proposed Action would likely have minor to moderate short-term localized impacts on air quality, hazardous waste and hazardous materials, and solid waste. Proposed activities could involve minor incursions into wetlands transition areas that may require a permit issued by the New Jersey Department of Environmental Protection (NJDEP). In the long term, there would be a beneficial effect on wetlands and water resources due to a decrease in impervious area with the removal of 104 buildings.

There would be a short-term effects and minor adverse impacts on traffic and transportation and health and safety. During burn or demolition operations, which require explosive safety distance arcs, on-post and off-post roads will have to be temporarily closed. These road closures will be intermittent and short term. The installation's road network can accommodate the projected short-term increase in traffic volume during proposed activities. Adjacent off-post roadways, particularly State Route 15, would be further stressed over the short term, but the effect may largely be mitigated by adjusting the timing of traffic signals.

The Proposed Action would likely have short-term negligible to minor adverse impacts on soil contamination, soil erosion, biological resources, and cultural resources. No impacts to floodplains are anticipated as a result of activities under the Proposed Action.

Implementing the Proposed Action would have no adverse effect on land use of non-government properties outside the installation's border.

Implementing the Proposed Action would have a beneficial effect on land use on the installation by supporting the mission for future redevelopment of Picatinny. The impacts associated with the Proposed Action and the No Action Alternative are summarized in **Table ES-1**.

Table ES-1
Alternatives Analysis Matrix

Valued Environmental Components	Proposed Action	No Action Alternative
Airspace	○	○
Energy	○	○
Noise	○	○
Socioeconomics	○	○
Environmental Justice	○	○
Infrastructure	○	○
Recreation	○	○
Land Use	+	○
Air Quality	◇	○
Water Resources	○	○
Soil Contamination	○	○
Soil Erosion	○	○
Wetlands	○	○
Floodplains	○	○
Biological Resources	○	○
Cultural Resources	○	○
Traffic and Transportation	○	○
Health and Safety	○	○
Hazardous Materials and Hazardous Wastes	⊗	○
Solid Waste	○	○

Symbol Key: Significant Impact X; Less Than Significant Impact ◇;
Beneficial impact + ; Moderate Impact ⊗ ; Not Applicable ; N/A ;
Minor or no Impact ○

Conclusions

Implementing the Proposed Action would not result in significant impacts to the physical environment of Picatinny. The conclusion of no significant impact is predicated upon implementing best management practices (BMPs) and mitigation measures during and immediately following proposed activities.

Collectively, BMPs and mitigation measures to be implemented have been identified in **Section 3.0**, and summarized in **Section 4.0**, of this PEA. These BMPs and mitigation measures are summarized in **Table ES-2**.

Table ES-2
Summary of Best Management Practices and Mitigation Measures

Resource Area	BMPs and Mitigation Measures under Proposed Action
Land Use	<ul style="list-style-type: none">• No environmental commitments
Air Quality	<ul style="list-style-type: none">• Contractors will use heavy construction equipment with emissions control technology to meet New Jersey Emissions Standards.• Restrict engine idling to 10-minute interval maximums.• Approved non-toxic soil binders will be applied to active unpaved roadways, unpaved staging areas, and unpaved parking areas throughout construction to reduce fugitive dust emissions.• Water disturbed areas of active construction sites at least three times per day (more often if uncontrolled fugitive dust is noted).• Schedule construction delivery traffic outside of peak-hour traffic patterns for the local community; other construction traffic will be minimized to the extent feasible.• Building burns will occur during daylight hours at wind speeds between 3 miles per hour (mph) and 17 mph.

Resource Area	BMPs and Mitigation Measures under Proposed Action
Water Resources	<ul style="list-style-type: none"> • Implement erosion and sediment control practices such as sediment trapping and filtering, following the details of the project's Erosion and Sediment Control Plan (E&SCP). • Use silt fencing, storm drain protection, straw mulching, and reseed bare surfaces. • All water used in decontamination activities will be captured and tested for contamination. • Toxic or hazardous chemicals will not be applied to soil or vegetation as part of interim-measure actions. • All land-disturbing activities will be planned and conducted to minimize the size of the area to be exposed at any one time and length of time of exposure. • After building demolition, best storm water management practices will be used and whenever possible, same day cleanup will be performed to minimize potential groundwater impact.
Soil Contamination	<ul style="list-style-type: none"> • Land disturbance in contaminated areas will be minimized, and sediment erosion control measures will be performed to minimize the potential for spreading contaminated soil. • Contractors will take post-excavation samples to ensure any potential soil contamination is appropriately documented so it can be addressed by the Installation Restoration Program (IRP) or other appropriate program.
Soil Erosion	<ul style="list-style-type: none"> • Soil erosion and siltation control measures will include using silt fencing, straw bales, and/or hydro-mulching in and adjacent to construction areas. • Installation contractors will be responsible for complying with standard operating procedures (SOPs) and applicable health and safety regulations.

Resource Area	BMPs and Mitigation Measures under Proposed Action
Wetlands	<ul style="list-style-type: none"> • The proposed project will comply with federal, state, and local regulations governing construction activities. • An E&SCP will be submitted to Morris County and certified prior to proposed remediation and demolition activities. • Review pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the proposed activities will not have a major impact on wetlands. • Spill prevention, control, and countermeasure procedures will reduce the potential for any hazardous substances used during construction to be discharged to wetlands. • Apply for an individual permit under New Jersey's Freshwater Wetlands Act if there were any impacts to wetlands. • Consult with state and federal agencies as part of the NJDEP permitting process. Picatinny will be subject to the special conditions and restrictions of the permit. • Remove hazardous materials from a building before demolishing. • Upon project completion, ensure no mounding and sufficient soil coverage for revegetation of indigenous species. • Properly stabilize all disturbed areas. • No clearing, cutting, or removal of vegetation in a transition area except for vegetation within a buffer of up to 50 ft of the structure if such a disturbance is determined necessary to facilitate the remediation and/or removal of the building. • Replant all vegetated areas temporarily disturbed within the riparian zone with indigenous, non-invasive species upon project completion.
Floodplains	<ul style="list-style-type: none"> • No environmental commitments
Biological Resources	<ul style="list-style-type: none"> • Restore disturbed areas and replace with native species or similar vegetation species after completion of construction activities. • Obtain Clean Water Act Sections 404 and 401 permits as required to mitigate riparian corridors and compensate for vegetation loss.
Cultural Resources	<ul style="list-style-type: none"> • Develop Historic Narratives with SHPO for all historic property demolitions prior to their final demolition as mitigated through the Real Property Master Plan and Facility Reduction Program Programmatic Agreement (Appendix D).

Resource Area	BMPs and Mitigation Measures under Proposed Action
Traffic and Transportation	<ul style="list-style-type: none"> • Prepare construction schedules for distribution to Picatinny employees prior to proposed activities. • Provide specific construction routes to contractors to minimize conflicts with routine vehicular traffic. • Open burn activities would occur during daylight hours (before 1400 hours) on weekends to minimize any potential effects to the Picatinny workforce and surrounding community.
Health and Safety	<ul style="list-style-type: none"> • Identify the construction zone and prohibit access to unauthorized individuals. • The use of cranes and other high-profile equipment will require a “spotter” when operating near any overhead hazards. • To minimize vehicle accidents, construction personnel will direct heavy vehicles entering and exiting the site. • Picatinny has also incorporated stringent safety standards and procedures into day-to-day operations.
Hazardous Materials and Hazardous Wastes	<ul style="list-style-type: none"> • Contractors will be responsible for managing hazardous materials in accordance with federal and state regulations. • Hazardous waste handling and storage will conform to current Hazardous Waste Management Plan and BMPs for Spill Prevention and Control and include spill response and notification procedures. • Conduct demolition activities in accordance with the Asbestos Management Plan, Lead-based Paint Management Plan, and Army Regulations and policies. • All construction personnel will follow a worker protection program that is fully addressed in the Accident Prevention Plan that has been developed for Picatinny.
Solid Waste	<ul style="list-style-type: none"> • Contractors are required to recycle a minimum of 50% of construction and demolition waste. • PCB contaminated waste will be disposed of in accordance with TSCA regulations.

Based on the analyses presented in this PEA and information provided by all consulted personnel, the proposed activities would not have significant impacts on the resources considered. Therefore, preparing an Environmental Impact Statement (EIS) is not warranted at this time. This decision is documented through a Finding of No Significant Impact (FONSI [Appendix G]).

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This section provides a brief introduction, a statement of the purpose of and need for the Proposed Action, and the scope of the environmental analysis and decision to be made.

1.1 Introduction

The Facilities Reduction Program (FRP), managed by the U. S. Army Corps of Engineers (USACE), Engineering and Support Center, Huntsville, Alabama, serves to eliminate excess facilities and structures to reduce fixed installation costs and achieve energy savings. The FRP performs facilities removal work for all the military services as well as other federal government agencies. This project involves demolishing buildings at Picatinny under the FRP. In support of this FRP action, USACE is conducting environmental-response activities under the Defense Environmental Restoration Program (DERP) to provide all services necessary to remove munitions and explosives of concern, material potentially presenting an explosive hazard (MPPEH), ACM, and ORM from Picatinny buildings to render them safe for demolition. The work being performed under the DERP is being executed by the U. S. Army Engineering and Support Center, Huntsville, under the Worldwide Environmental Remediation Support contract.

The DERP was established by Section 211 of the Superfund Amendments and Reauthorization Act of 1986 (SARA). DERP provides for the cleanup of hazardous substances associated with past Department of Defense (DoD) activities and is consistent with the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended.

Three program categories have been established under DERP: The IRP category refers to environmental responses (e.g. investigation, cleanup) to hazardous substances, pollutants, contaminants, and POL. The MMRP category refers to munitions responses to UXO, DMM or MC. The MMRP integrates, to the extent practical, explosives safety and environmental requirements to protect public safety, human health, and the environment. The Building Demolition/Building Remediation (BD/DR) program category refers to the demolition and removal of unsafe buildings and structures at facilities or sites and it is this DERP category under the FRP that applies to the Proposed Action at Picatinny.

Picatinny's Real Property Master Plan (RPMP) includes construction and demolition undertakings to support military mission construction projects, and an increase in operations and redevelopment of existing facilities to include demolishing surplus buildings as part of the FRP. Picatinny is proposing the assessment, remediation, and/or demolition of 104 buildings located on its facility.

Picatinny has prepared this PEA to analyze the potential impacts from implementing this action. The programmatic nature of the document is necessary to allow sufficient flexibility. Because the buildings have not yet been surveyed for ACM, ORM, or MPPEH, all of the remedial actions and remedial techniques have not yet been fully planned.

If the analyses presented in the PEA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a FONSI would be prepared. A FONSI briefly presents reasons why a Proposed Action would not have a significant effect on the human environment and why an EIS is unnecessary. If significant environmental issues result that cannot be mitigated to insignificance, an EIS would be required, or the Proposed Action would be abandoned and no action would be taken.

Picatinny prepared this PEA in accordance with NEPA of 1969; 40 CFR, Parts 1500-1508, CEQ regulations implementing NEPA; Army Regulation (AR) 200-1, Environmental Protection and Enhancement; and 32 CFR Part 651, Environmental Analysis of Army Actions.

Picatinny is located in Morris County in the north-central portion of New Jersey (**Figure 1-1** and **Figure 1-2**). Picatinny lies west of the greater New York/New Jersey Metropolitan Area, 32 miles northwest of Newark, and 42 miles west of New York City. Local boroughs in the immediate vicinity include Wharton (1 mile), Dover (3 miles), and Rockaway (5 miles). Interstate (I)-80, I-280, and I-287 comprise the major travel thoroughfares in the area. New Jersey State Route (SR) 15 forms the southern boundary of Picatinny and provides access to its main gate. Please refer to the *Picatinny Arsenal Real Property Master Plan Programmatic Environmental Assessment* (Picatinny Arsenal, 2008a) for a detailed discussion on Picatinny location, history, missions, and operations.

1.2 Purpose and Need

The purpose of this project is to assess, remediate, and/or demolish 104 buildings at Picatinny. These buildings slated for remediation and/or demolition are spread throughout the installation and have a varied history of use.

The buildings have been unused for various lengths of time ranging from several years to decades. The buildings are in various stages of disrepair, and in some cases, the structural integrity of the buildings is poor, causing potentially hazardous conditions. As a result of manufacturing operations in the subject buildings over many decades, the potential for contamination in building interior, exterior, and equipment exists. Demolition would remove potential hazards associated with these buildings, including hazards from asbestos, other regulated materials, explosives contamination, and structural condition.

It is important to note that a PEA is a document of broad and general scope. It must be flexible, and it is not a fixed blueprint. Variances within the constraints established in the project Work Plan are expected to occur. Small project components that produce no significant permanent impact are not necessarily delineated.

1.3 Scope of Environmental Analysis and Decision to Be Made

This PEA addresses potential environmental impacts resulting from implementing the Proposed Action at Picatinny; and supports the U.S. Army decision-making process related to the Proposed Action. Specifically, Picatinny must decide whether or not to assess, remediate, and/or demolish 104 buildings located on its facility. In addition to the considerations related to the requirements of NEPA and applicable regulations, Picatinny must consider redevelopment goals in support of the military mission.

The PEA provides an evaluation tool to help assess future actions that are comparable to those projects and activities currently identified and evaluated in this document. NEPA documentation for future actions may be tiered from this PEA, thereby eliminating duplicate discussions that can be referenced from this document. The PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document.

In an effort to assist proponents in identifying any NEPA requirements beyond this PEA for conducting similar proposed remediation and/or demolition activities at Picatinny, a checklist has been developed and is provided in **Appendix A** for use by installation personnel and the proponent to certify that they understand and support the requirements and discussions contained in this PEA, particularly the site conditions, Proposed Action, and any required mitigation measures.

If conditions of the checklist are met, and if the procedures and mitigation measures are adopted by the Picatinny proponent, the construction could then proceed. A Record of Environmental Consideration (REC) may then be prepared referencing this PEA if deemed necessary by the project proponent. If either some checklist conditions are not met, Picatinny does not adopt the provisions of this PEA, or the installation Environmental Affairs Division finds this PEA inadequate, preparation of a separate Environmental Assessment (EA) or EIS may be required.

Consistent with the CEQ regulations, the PEA is organized into the following sections.

- Section 1.0, Purpose and Need for the Proposed Action, includes a background description, purpose and need statement, PEA organization and scope of environmental analysis, and regulatory framework.
- Section 2.0, Description of the Proposed Action and Alternatives, includes a process for alternatives development and alternatives considered but eliminated.
- Section 3.0, Affected Environment and Environmental Impacts, includes a description of the natural and man-made environments within and surrounding Picatinny that may be affected by the Proposed Action or the No Action Alternative; and discussions of direct and indirect impacts and mitigation and monitoring.

The section also includes an analysis of the potential cumulative impacts on Picatinny; unavoidable adverse impacts; the relationship between short-term use of the human environment and the maintenance and enhancement of long-term productivity; and irreversible and irretrievable commitments of resources.

- Section 4.0, Mitigation Summary, includes a summary of the mitigation measures to be adopted during the performance of this project.
- Section 5.0, Summary and Conclusions.
- Section 6.0, List of Preparers.
- Section 7.0, List of People and Organizations Contacted, contains a list of agencies consulted during PEA preparation.
- Section 8.0, References, contains references for studies, data, and other resources used in the preparation of the PEA; and
- Appendices, as required.

CEQ regulations require federal agencies to consider alternatives to proposed actions and analyze impacts of those alternatives. Potential impacts of alternatives described in this PEA will be assessed in accordance with 32 CFR Part 651, which requires that resource impacts be analyzed in terms of their context, duration, and intensity. To help the public and decision makers understand the implications of impacts, they will be described in the short- and long-term, cumulatively, and within context. Although all resources are evaluated, the PEA will be “issue-driven” emphasizing the resources of most concern to the project. The VECs to be reviewed and discussed in this PEA include land use, air quality, water resources, soil contamination, soil erosion, wetlands, floodplains, biological resources, cultural resources, traffic and transportation, health and safety, hazardous materials and hazardous wastes, and solid waste. The VECs not affected by the Proposed Action (airspace, energy, noise, socioeconomics, environmental justice, infrastructure, and recreation) are only briefly discussed in **Section 3.0**.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides an introduction to the Proposed Action, criteria used in selecting the Proposed Action, a detailed description of the Proposed Action, a description of the No Action Alternative, and identification of alternatives eliminated from further consideration. This PEA is based on the approved *Final Site-Specific Remediation Work Plan, Environmental Remediation of 82 Buildings*, Picatinny Arsenal, New Jersey (ITSI, 2011) and the best available information to date. In addition to the 82 buildings that will be evaluated and remediated for explosives contamination, 22 buildings do not have a history of explosives use and would be demolished without the need for explosives evaluation or remediation. Therefore, a total of 104 buildings would be involved in the project. Six of the 82 buildings with a history of explosives use would be evaluated for contamination by explosives or ORM but not demolished.

The overall planning schedule for the proposed project is not absolute. Modification may be made to priorities, and specific facility requirements could change during project implementation. It is possible that aspects of the Proposed Action might be modified; Picatinny decision makers would review the final PEA to determine if the Proposed Action has changed significantly or if there is new environmental information that would warrant additional environmental review. If appropriate, Picatinny decision makers would consider additional environmental documentation at that time.

The alternatives analyzed in this document in accordance with NEPA are the result of scoping input. All alternatives considered must meet the purpose and need for the Proposed Action. Conceptual alternatives that were considered but eliminated from further analysis are discussed in **Section 2.4**. Two alternatives are analyzed for potential impacts in this PEA: the Proposed Action and the No Action Alternative.

2.1 Selection Criteria

Several requirements were identified to fulfill the purpose of the Proposed Action at Picatinny. The Proposed Action and other alternatives were screened against the following criteria:

- No alternative can have substantive negative impacts on the Army mission or the operations of Picatinny Arsenal;
- Any alternative evaluated must fully comply with all federal, state, and local laws and regulations, as well as DoD and U. S. Army policies, directives, and regulations;
- The action must meet mission and safety requirements; and
- The action must be economically feasible and protect the environment.

2.2 Proposed Action

The Proposed Action is to implement the FRP and the DERP at Picatinny.

The Proposed Action includes assessing, remediating, and/or demolishing up to 104 buildings at Picatinny (**Figure 2-1**). Through examination of the buildings usage history, it has been determined that 82 of the buildings have a history of explosives use. These 82 buildings would be assessed for explosives contamination and, where necessary, remediated. The remaining 22 buildings have no history of explosives use and would be demolished by conventional means after removal of ACM and ORM by a demolition contractor. Buildings included under the Proposed Action are described in **Appendix B**.

For the 82 buildings with a history of explosive usage, **Figure 2-1** differentiates between those buildings preliminarily deemed to be a “limited” or “significant” probability of explosives hazard and those buildings that do not have a history of explosives usage. Due to the potential for explosives contamination of these 82 buildings, further assessment would be required in accordance with Engineering Manual (EM) 385-1-97. The assessment of the 82 buildings for explosives contamination would determine if there is a need for explosives remediation of the building and associated infrastructure.

If the assessment determines that a structure is not explosively contaminated, the demolition of the structure would be accomplished (for the buildings slated for demolition) by conventional demolition. If explosives contamination is identified, remediation of the structure would be accomplished to the level necessary prior to demolition by either conventional means or by open burning methods. The buildings would be surveyed for ACM and ORM. ACM and ORM would be remediated prior to demolition. Picatinny would provide the following information to the appropriate agencies prior to any demolition activities:

- Notifications to Federal and state agencies;
- Scope of Work for each facility;
- Signed manifests;
- Transmission Electron Microscopy clearance for each abatement; and
- Signed disposal receipts.

The following subsections describe proposed activities under the Proposed Action.

2.2.1 Debris Removal

Loose debris must be removed from each building before the building can be fully assessed with respect to ACM, ORM, and explosives contamination. Loose debris (including metal chairs, desks, etc.) would be inspected and tested for reactivity as described in **Section 2.2.2.2**. Once classified, the debris would be removed by contractors to pre-staged dumpsters.

Prior to initiating debris removal operations, contractors would:

- Review site records for each building to determine the building’s explosives manufacturing and explosive accidents/fatality history;

- Visually evaluate each building to verify current site conditions and evaluate potential safety hazards;
- Prepare each building and the surrounding work area by inspecting the building interior and making an initial assessment as to the loose debris' explosive hazard potential. Debris would be classified as “no probability for explosive hazards,” “low or limited probability for explosive hazards,” or “significant probability for explosive hazards;”
- To the extent necessary, remove vegetation including dry grass, dead wood, heavy clippings, brush, and invasive trees within a maximum 50-ft buffer from the structure. Depending on the nature of the debris in the building or the remedial technique that will ultimately be selected, vegetation will have to be cleared at least 20 ft from the building or as much as 50 ft from the building. A 50-ft fire break to be maintained during routine maintenance is specified by DA Pam 385-64 dated 24 May 2011 for aboveground magazines, operating buildings/locations, outdoor storage sites, and ready explosives facilities.

While the majority of the buildings have vehicle access through adjacent roadways or driveways, it may also be necessary to cut vegetation on 25-ft access ways to get construction vehicles to buildings. Some of the access ways and buffer zones lie within regulated areas. A map depicting the maximum brush/tree clearing area is included in **Appendix F**. This amount of brush clearing is presented as a worst-case scenario and may not be necessary for all buildings. The loss of trees and brush will be a temporary condition as the project's goal is to remove structures, reseed, and allow the areas to return to a natural state.

- Identify and mark the exclusion zone to prevent unauthorized access;
- Pre-stage roll-off containers labeled hazardous waste, non-hazardous waste, and nonhazardous metal debris;
- Mobilize, stage, and set up necessary equipment;
- Where deemed necessary, conduct a pre-treatment wash for some of the buildings from the point of building entry to ensure a safe work area during loose debris removal. Floors and loose debris will be subjected to a low-flow, high-pressure, hot water wash; and
- Test for reactivity. Pre-treated debris testing negative would be verified to have “no explosive hazard” using DD Form 1348-1A, removed from the building, and placed in a non-hazardous roll-off container for proper off-site disposal or recycling. Pre-treated debris testing positive for explosive residue may be subjected to a hot water bath, dismantled as necessary, removed from the building, and placed in a hazardous roll-off container for proper disposal.

It is anticipated that decontamination or treatment of materials removed from the buildings can be achieved to the level required for safe transport of the material to the Picatinny burning grounds or appropriate landfill facilities. On-site thermal treatment of debris and process equipment by means of a mobile thermal destruction unit or blast chamber may be considered if the necessity arises; however, anticipated regulatory issues for air permitting may prohibit the use of this or similar technology (ITSI, 2011).

2.2.2 Site Assessments

Each of the 104 buildings is contaminated or unsafe to a varying degree. An assessment of each building would be completed with respect to ACM, ORM, and explosives contamination (ITSI, 2011).

2.2.2.1 ACM and ORM Assessment

An ACM and ORM survey would be conducted in each building to collect data to assess controls necessary to minimize exposure to workers and the environment from asbestos fibers and other hazardous materials during planned building demolition. The technical approach for surveying ACM and ORM includes the identification, sampling, if appropriate, and quantification of the following:

- ACM;
- Fluorescent bulbs and ballasts, and transformers potentially containing mercury or polychlorinated biphenyls (PCBs);
- Switches and thermostats potentially containing mercury;
- Mechanical systems potentially containing mercury;
- Exit light and emergency lighting batteries;
- Oil, glycol, and Freon-containing devices;
- Regulated lamps (including high-intensity discharge, neon, high-pressure sodium, and metal halide);
- Potentially regulated or hazardous substances, including unknown or unlabeled chemical containers, and other materials for which special handling may be required prior to demolition;
- Laboratory fume hood residues; and
- PCB-containing paints on piping system and all material surfaces (representative of various colors of paint from each area) in buildings that are potentially going to be burned.

2.2.2.2 MPPEH Assessment

An Explosives Site Plan (ESP) would be prepared detailing the Explosive Safety Quantity-Distance (ESQD) for minimum separation distances to be maintained during the assessment and debris removal portion of the project. A three-step process would be used to 1) classify the likely extent of energetic material contamination in the structures, 2) inspect and test for energetic material contamination, and 3) remove energetic material.

Each structure has been classified as to its likely extent of explosive residue. These classifications are either “limited” or “significant.” Final classification would take place after all historical records can be gathered, compiled and reviewed, and appropriate MPPEH testing has been completed. Significant presence of energetic material contamination can be expected in a structure where the operations resulted in extensive migration of energetic material in the structure and equipment. Any operation performed in these structures that was capable of a release of substantial quantities of energetic material would be assumed to have produced a significant amount of contamination.

Limited contamination can be expected in structures where operations performed cannot reasonably be expected to generate energetic materials that may have migrated. These operations can be expected to have released little or no energetic material during production. **Appendix B** addresses each facility, the type of energetic material anticipated, and the likely extent of contamination.

After the building is determined to be free of friable ACM and is sufficiently free of debris, a complete MPPEH assessment would be safely and efficiently performed by contractors. The MPPEH assessment objectives are to obtain data of sufficient quality and quantity to demonstrate that the boundaries of identified explosives have been delineated and to demonstrate that the data set is sufficient to enable the completion of subsequent remediation. Each facility would be inspected and tested for explosive residues. Visual inspection, supplemented by colorimetric tests, would conservatively determine the presence of explosive hazards.

After completion of all assessment activities, an Assessment Report would be produced containing information compiled from the ACM, ORM, and MPPEH surveys. The building categorization (limited or significant) would be finalized at this point (ITSI, 2011).

2.2.3 Remediation

Appropriate remedial actions would be initiated and completed by contractors at each facility designated for remediation. Initial activities would include mobilization of all field personnel and required equipment; and site setup to include in-processing, site orientation, installation of storm water protection and safety fencing, utility remediation, and utility disconnect, capping, rerouting, and/or removal.

Contractors would then complete ACM abatement and hazardous materials removal and disposal based upon the results presented in the Assessment Report findings.

All ACM, ORM, and explosives contamination in the interior and exterior portions of each building and interior and exterior equipment and piping would be remediated, removed, and disposed. The end state of each such remediated building would be an interior/exterior that is equipment-, piping-, lead flooring-, and asbestos-free, leaving what remains of each building in a safe condition for demolition as part of a follow on effort.

After remediation, debris disposal/diversion would occur so that all debris is removed, recycled (as applicable), and the site is clean. Site restoration and final cleanup would be performed to include restoring finished surfaces into the surrounding grade. The final grading would be conducted to ensure there is no ponding or soil mounding. Sufficient soil would be placed at the site to allow revegetation by indigenous species.

Salvage operations would be carried out for all scrap certified as material documented as safe (MDAS) once remediation to an MDAS condition is complete and arrangements are coordinated for the installation to receive available scrap. Scrap would be staged and transported in installation-provided receptacles for all MDAS materials.

Anything certified less than MDAS would be transported to the installation burning grounds for disposal (ITSI, 2011).

2.2.3.1 *Management of Debris*

Structures considered to have limited energetic material contamination may be left in place depending on structural and other considerations. These structures would be certified “safe” using the two 100% inspection rule. Structures considered having significant energetic material contamination would normally be destroyed during decontamination using conventional wet demolition methods or thermal treatment as described in **Section 2.2.3.2** and **Section 2.2.3.3**.

All equipment and building debris that can be certified MDAS would be disposed of in a permitted landfill. Prior to any transfer from DoD control, all material would be inspected using the two 100% inspection rule (ITSI, 2011). If suspected PCBs in the debris are identified at greater than 50 ppm, disposal would be in accordance with Toxic Substances Control Act (TSCA) regulations. TSCA regulations (40 CFR Part 761, et al) will be adhered to when dealing with PCB Bulk Product Waste and/or PCB contamination.

2.2.3.2 *Conventional Wet Demolition*

Explosive safety precautions would be maintained during all structure demolition. Conventional wet demolition would only be attempted on hazardous structures that represent a very low risk of unintentional detonation when wet methods are used.

Demolition of each hazardous structure and slab would employ the ESQD arc specified in the Explosives Safety Submission (ESS). Many types of equipment and various structural components may need to be removed before demolition. These items include, but are not limited to, equipment and material for recycling and ACM that must be abated before demolition.

These items would be disposed of in the landfill or decontaminated and recycled as appropriate. A hardened excavator would be used during wet demolition when areas are determined to be of concern, suspected of being contaminated, or deemed inaccessible due to structural integrity issues.

The entire section of a structure to be demolished would be completely dampened with water and would continue to be periodically wetted throughout the entire demolition operation. This would be accomplished by using fire hydrants, fire trucks, and water trucks. Areas to be wetted would be fully inspected to determine if runoff contamination may be a concern.

Engineering controls to manage runoff would be used to prevent any runoff contamination and would include erosion and sediment control practices, such as sediment trapping, filtering, and other BMPs. Minimum BMPs or Best Pollution Practices to be used will include a construction site entrance, silt fencing, storm drain protection, straw mulching, and reseeded of bare surfaces as soon as possible.

Demolition work would proceed from top to bottom, working from the outside of each structure. To the extent practical, the roof and exterior walls would be demolished inward, in a controlled manner, creating a pile of debris over the existing slab/foundation.

This procedure may be accomplished in stages to allow for additional wetting and energetic material inspection and decontamination.

Additional wetting operations and MPPEH inspections would continue throughout the demolition process as necessary. All demolition activities would cease during inspection activities. The loading of dump trucks would be performed only when demolition activities have ceased. This may be a temporary stop to allow for the clearance of structure debris impeding further demolition work. In any case, all dump truck operators would be kept a minimum of 200 ft from demolition work while in progress.

If evidence of energetic material contamination is discovered during demolition activities, all work would immediately cease. Demolition crew members would leave the area while unexploded ordnance (UXO) personnel assisted by trained workers inspect and decontaminate as necessary. Demolition activities would resume only when UXO personnel have determined it safe to do so. At any time, at the discretion of the Senior UXO Supervisor, a structure is determined to be too hazardous to be a candidate for conventional wet demolition, all work would stop and the structure would be recommended for thermal treatment or remote demolition in accordance with the basic ESS (ITSI, 2011).

2.2.3.3 *Burn in Place*

Burning in place would occur in buildings that contain primary explosives, such as dry undecomposed nitrocellulose and nitroglycerine (NG).

Preliminary site histories and inspections determined that it is likely that Buildings 210, 408, 1362, 1363, and 1373 would require burning in place based on the NG production or usage of other shock-sensitive explosives that took place in these buildings.

Burning-in-place remediation would follow the procedures outlined in Section 1.5.C.01 of EM 385-1-97, Building and Installed Equipment Containing Explosives Residues that Present Explosion Hazards. The following is the step-by-step procedure to complete the burning-in-place process.

1. ACM and ORM (including all paint containing levels of PCBs in excess of 50 parts per million [ppm]) would have already been removed prior to the actual burning date.
2. All action plans and permits would be submitted and approved prior to scheduling the burn date. Unless instructed by Picatinny, all burn dates would occur during weekend hours. All notifications would be completed before the burn date.
3. A Danger Zone or minimum safe distance arc around the structure would be determined based on type of explosive identified and whether adjacent buildings are occupied and the nature of the operations of those adjacent buildings. This would include the exclusion area that would be cordoned off to prevent unauthorized access while destruction preparations are in progress.
4. Trees and vegetation would be cut to provide a 50-ft-wide firebreak around the exterior of the building. Any removal of trees and vegetation would be in accordance with applicable laws and regulations, and if necessary, Picatinny would obtain a permit before trees are removed.
5. Wood pallets as dunnage would be used for burning these buildings at a required temperature needed to decompose, detonate, and burn the residue. Wood doors associated with the building would be removed and placed inside the building for added fuel, provided they do not contain regulated or hazardous materials. Wood used for fuel would be untreated. Wood would be stacked half-way to the ceiling. A maximum of 200 gallons of No. 2 fuel oil (diesel fuel) would be placed in plastic containers located strategically inside the buildings. Diesel fuel would also be lightly applied to the dunnage/wood on the day of the burn to augment the temperatures within the buildings to ensure the success of the thermal decomposition operations. Diesel fuel would be applied in a manner so as to not create runoff. Engulf burning would occur for at least 30 minutes. Explosive residue in confined space, process vessels, or piping that exceed the maximum credible event (MCE) as defined during the MPPEH investigation, would be removed prior to burning. Otherwise, the estimated weight of explosive residue allowed to burn with the building would define the minimum stage distance for personnel during the burn.
6. All vessels and piping capable of pressure containment would be vented to minimize the probability of accidental detonation during burning.

Remote cutting and remote venting procedures would be used for vessels or piping containing large quantities of residue explosives. Glass windows would be removed to reduce fragment hazard in event of a detonation.

7. If the roof was not previously removed, roof venting would be performed to create sufficient draft during burning.
8. Barricades would be established and pre-determined road closures would be enforced until all barricades have been removed. Water pump trucks would be on-site and tested prior to the burn. Picatinny Fire Department would assist with fire protection during all burn operations.
9. Conditions to allow the burn to occur would include winds between 5 miles and 10 miles per hour (mph) and clear to partly sunny skies with a cloud deck greater than 1,000 ft. These conditions would be verified by National Weather Service data.
10. Burning would only occur during daylight hours and would not occur after 1400 hours. The building burns would be timed to end prior to 1400. Any change in weather condition would be monitored by regional meteorological monitoring stations. Carbon monoxide (CO) concentrations would be recorded every 30 minutes at a position nearest the downwind property line. CO concentration should not exceed NJDEP burn permit requirements.
11. Electrical blasting caps or equivalent would be used to detonate the building.
12. When the debris has cooled sufficiently, the debris would be inspected to determine if the burn was successful in eliminating explosive residue. Security and fire watch would continue until the area has been declared safe by the UXO Safety Officer with concurrence from the Picatinny Fire Department.
13. Post-burn DropEx samples would be collected to determine if explosive residues are still present. Post-burn soil samples would not be required because hazardous materials would have been mitigated from the facility prior to burning.

2.2.4 Building Demolition

Conventional techniques would be employed to demolish all buildings either not requiring remediation or for the buildings undergoing remediation once prescribed remediation activities are complete. After demolition activities are completed, all construction debris would be sent to a recycler or off-site landfill, as appropriate. All building slabs would be removed and each building site would be restored to its natural grade.

2.2.5 Disconnection of Utilities

The contractor would disconnect and remove utilities at each building.

The majority of the buildings do not have active connections; however, the contractor would assume that all connections are active until demonstrated otherwise and use licensed electricians and plumbers to terminate and cap all utilities on active utilities. Competent tradesman would remove inactive utilities to a maximum distance of 100 ft from the building or to a trunk line/adjacent building. Excavation would be performed under UXO construction support procedures.

Utilities would likely be removed in two mobilizations. Above-ground utilities (steam and electric) can be removed prior to the completion of the MPPEH survey task; therefore, this work would be initiated first. After the completion of the MPPEH survey task, any underground lines exhibiting signs of contamination with energetic material would have been identified. A second mobilization would be conducted for the subsurface utilities.

As part of each mobilization and project setup, the Directorate of Public Works (DPW) would be contacted to confirm the required limits of utility removal and/or capping work.

Once the limits of work have been established and information/drawings of utility locations obtained for each building, a utility survey would be performed to mark the locations of the various subsurface utilities. Anticipated utilities include: electrical feeds, sanitary sewer connections, storm sewer connections, potable water system, fire protection system, service water connections, and steam lines.

At the completion of utility removal and capping work in each area, open excavations would be backfilled with the material removed and deemed suitable for backfill (debris-free).

Backfilled material, which could include soil from construction soil piles at Picatinny per the Picatinny Soil Management Policy, would be compacted using the excavator/backhoe bucket only, with no compaction testing required. Backfilled areas would then be covered with either top soil with grass seed for restoration, or crushed stone in areas where pavement or stone was present prior to the work (ITSI, 2011).

2.3 *No Action Alternative*

Under the No Action Alternative, current projects would continue to develop as planned and the action proposed in this PEA would not be taken. No remediation and demolition of the identified buildings in disrepair would occur at Picatinny under this alternative. Potentially hazardous conditions in these buildings would remain, and the areas occupied by the buildings would not be returned to their natural setting. Structural and explosives hazards would remain in place.

Although this alternative does not satisfy the purpose and need for long-range expansion, it is included in the environmental analysis to provide a baseline for comparison with the proposed action and is analyzed in accordance with CEQ regulations for implementing NEPA.

Although this alternative would eliminate unavoidable adverse, short- and long-term impacts associated with the Proposed Action, the No Action Alternative would not satisfy selection criteria established under the purpose and need for this project, resulting in:

- Ongoing costly maintenance for outdated and unsafe facilities;
- Failure to meet the goals outlined in Picatinny's overall mission; and
- Failure to prepare Picatinny and its facilities for the future.

2.4 *Alternatives Eliminated from Further Study*

As part of the NEPA process, potential alternatives to the Proposed Action must be evaluated. For alternatives to be considered reasonable and warrant further detailed analysis they must be affordable, implementable, and meet the purpose and need for the action based on the project requirements stated in **Section 2.2**. Conceptual alternatives to the Proposed Action were considered to determine their feasibility as viable alternatives to remediating and demolishing the existing buildings at Picatinny.

One such conceptual alternative would involve conducting remediation activities as described under the Proposed Action, but rather than demolishing the subject buildings for subsequent redevelopment of the property, Picatinny would renovate the buildings for reuse.

This conceptual alternative was eliminated from further consideration because it is not economically feasible. This alternative will not be explored further in this PEA.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This section describes the current environmental and socioeconomic conditions most likely to be affected by the Proposed Action, as well as the potential impacts resulting from implementation of either the Proposed Action or No Action Alternative. The section also includes an analysis of the potential cumulative impacts on Picatinny, unavoidable adverse impacts, the relationship between short-term use of the human environment and the maintenance and enhancement of long-term productivity, and irreversible and irretrievable commitments of resources.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 651, the description of the affected environment focuses on those resources and conditions potentially subject to impacts. The VECs, or resource areas, reviewed and discussed in this PEA are identified in **Table 3-1**. Analysis of potential environmental effects focuses on those VECs that are appropriate for consideration in light of a proposed action. The VECs in **Table 3-1** are identified as either “Resource Areas Eliminated from Further Consideration” or “Program Resource Areas,” and are described in the following sections.

**Table 3-1
Valued Environmental Components**

Resource Areas Eliminated From Further Consideration	Program Resource Areas
Airspace	Land Use
Energy	Air Quality
Noise	Water Resources
Socioeconomics	Soil Contamination
Environmental Justice	Soil Erosion
Infrastructure	Wetlands
Recreation	Floodplains
	Biological Resources
	Cultural Resources
	Traffic and Transportation
	Health and Safety
	Hazardous Materials and Hazardous Waste
	Solid Waste

The specific criteria for evaluating impacts and assumptions for the analyses are presented under each resource area. Evaluation criteria for most potential impacts were obtained from standard criteria; federal, state, or local agency guidelines and requirements; and/or legislative criteria. Proposed mitigation measures are included for each environmental issue, as appropriate, to reduce potential impacts.

Impacts are defined in general terms and are qualified as adverse or beneficial, and as short term or long term. For the purposes of this PEA, short-term impacts are generally considered those impacts that would have temporary effects.

The thresholds of change for the intensity of impacts are defined as follows:

1. **Negligible** – the impact is localized and not measureable or at the lowest level of detection;
2. **Minor** – the impact is localized and slight but detectable;
3. **Moderate** – the impact is readily apparent and appreciable; or
4. **Major** – the impact is severely adverse or highly noticeable and considered to be significant.

3.1 Resource Areas Eliminated From Further Consideration

Analysis of potential environmental effects associated with a PEA typically addresses numerous resource areas that may be affected by implementation of proposed actions. In the case of Picatinny implementing the Proposed Action, certain environmental resource areas that typically receive attention have been initially examined and determined not to warrant further analysis. These areas include airspace, energy, noise, socioeconomics, environmental justice, infrastructure, and recreation. Each of these subject areas are discussed briefly as follows.

3.1.1 Airspace

Picatinny has no facilities for aircraft operations. There are two regional airports in the vicinity of Picatinny. Morristown Municipal Airport is approximately 10 miles southeast of Picatinny, near the intersection of Route 287 and Route 24. Teterboro Airport is situated approximately 25 miles east of Picatinny in the boroughs of Teterboro, Moonachie, and Hasbrouck Heights in Bergen County, New Jersey. Both facilities are reliever airports that support general aviation and charter services only. Implementing the Proposed Action would not affect aircraft operations at the regional airports and have no effect on local airspace (Picatinny, 2008a).

3.1.2 Energy

Picatinny's former central steam plant (Building 506) was deactivated in 2006 following the successful decentralization of the natural gas-fired boiler plants. Currently, most buildings have their own gas-fired boilers to heat water and provide comfort heat in the winter. As a result of privatization, New Jersey Natural Gas owns, maintains, and operates the natural gas distribution system, which consists of approximately 12 miles of lines.

Cooling is provided by self-contained units sized for each facility. Jersey Central Power and Light supplies electric power to Picatinny via two 34.5-kilovolt overhead transmission lines. Sussex Rural Electric Cooperative (SREC) owns, operates, and maintains the electrical distribution system, which has been completely replaced and upgraded.

Power demand has decreased steadily over the past 10 years, and SREC has met annual loads. Picatinny DPW expects future decreases in energy consumption and cost because of increased energy efficiency.

Implementing the Proposed Action would have a negligible effect on Picatinny's energy demands (Picatinny, 2008a).

3.1.3 Noise

Ballistics testing and open detonation create high levels of impulsive noise that preclude locating noise-sensitive development on adjacent property. A noise study prepared by the U. S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) assessed these noise levels and their compatibility with adjacent land uses (USACHPPM, 2007).

Three different zones were used to categorize the relationship between noise and land use. Zone I impulsive levels below 62 dBC (C-weighted average day-night decibel levels) are compatible with noise-sensitive land uses such as housing, schools, and medical facilities. Zone II impulsive noise levels range between 62 dBC and 70 dBC and are normally incompatible with noise-sensitive land uses. Zone III impulsive noise levels exceed 70 dBC and are generally incompatible with noise-sensitive areas.

The study concluded that the noise levels resulting from Picatinny operations were compatible with adjacent land uses (U. S. Army, 2007). A new environmental noise management plan was prepared by USACHPPM and finalized in November 2007. Under the Proposed Action, some remedial techniques would necessitate blasting activities. Current and projected actions on Picatinny would have a negligible effect on the residents or employees on Picatinny or on the residents of adjacent properties.

3.1.4 Socioeconomics

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. The Proposed Action would not alter the number of personnel assigned to Picatinny, or change local population densities or distribution, or result in any increased development. Therefore, there would be no changes in area population or associated demands for housing and support services.

Also included with socioeconomics are concerns pursuant to Executive Order (EO) 13045, "Protection of Children from Environmental Health Risks and Safety Risks." This EO directs federal agencies to identify and assess environmental health and safety risks that might disproportionately affect children. The Proposed Action would not pose any adverse or disproportionate environmental health and safety risks to children living on or in the vicinity of Picatinny. The proposed project area does not include residential or recreational areas, and the likelihood of the presence of children at the site of the Proposed Action is considered minimal, which further limits the potential for any effects.

Thus, implementing the Proposed Action would have little or no effect on socioeconomic issues at Picatinny or in the surrounding area.

3.1.5 Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies address the effects of policies on minorities and low-income populations and communities, and to ensure that there would be no disproportionately high and adverse human health or environmental effects to minority or low-income populations or communities in the area. A “minority” is defined as a person who is Black, Hispanic (regardless of race), Asian American, American Indian, and/or Alaskan Native. “Low-income” is defined as a household income at or below the U.S. Census Bureau Poverty Threshold (Federal Highway Administration [FHWA], 1998).

There are no environmental justice populations known to occur in the potentially impacted area that may be disproportionately affected through implementation of the Proposed Action. Therefore, there would be no disproportionately high and adverse human health or environmental effects to minority or low-income populations or communities in the area.

Thus, implementing the Proposed Action would have little or no effect on environmental justice issues at Picatinny or in the surrounding area.

3.1.6 Infrastructure

Infrastructure consists of systems and physical structures that enable a population in a specified area to function. Infrastructure is human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed.

The availability of infrastructure and its capacity to support growth are regarded as essential to economic growth of an area. Issues and concerns regarding infrastructure are related to creating stress on infrastructure systems, such that the existing infrastructure must be updated or changed. Assessing impacts to infrastructure entails a determination of infrastructure that would be used as a result of the Proposed Action. No upgrades are expected to be needed for electrical power, natural gas, potable water, and sanitary systems. The proposed project would not place a demand for public utility services and would not be a major impact to regional or local energy supplies. Implementing the Proposed Action would not have an adverse effect on Picatinny’s infrastructure systems (Picatinny, 2008a).

3.1.7 Recreation

The recreational and cultural facilities on Picatinny consist of a golf course, baseball fields, jogging areas, a fitness club, a childcare center, an officer’s club, and meeting and seminar buildings. Picatinny has many active hunting areas for deer and small game. Several of the project buildings fall within these active hunting areas.

Because the majority of the work would take place indoors and not require explosive safety distances, hunting would not be interrupted for the majority of assessment or remedial activities (e.g. asbestos abatement).

Because remediation and demolition activities that would preclude access to some hunting areas would take place over a relatively limited timeframe (less than 5 days per building for the majority of the buildings), there would be negligible impact to hunting activity.

3.2 *Program Resource Areas*

A program resource area is a VEC that warrants further discussion because of the potential effect the Proposed Action may have on that VEC. Resource areas in this section include land use, air quality, water resources, soil contamination, soil erosion, wetlands, floodplains, biological resources, cultural resources, traffic and transportation, health and safety, hazardous materials and hazardous waste, and solid waste.

3.2.1 *Land Use*

3.2.1.1 *Existing Conditions*

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Picatinny's physical layout is closely tied to its development as a munitions manufacturing arsenal and storage depot. Land use at Picatinny includes improved grounds, semi-improved grounds, and unimproved ground, with the Arsenal divided into six broad land use categories, including training areas, research, development, and testing areas, administrative areas, housing and community areas, parking areas, and safety clearance zones. The primary population of the Arsenal consists of military and support personnel, known to be either residents or daily Arsenal employees (Picatinny, 2009).

The installation is spread out across 5,853 acres, with much of the open space (unimproved grounds) between facilities reserved as explosive safety zones. **Figure 3-1** shows existing land use on Picatinny. In addition, five perpetual restrictive (safety) easements ranging in area from 47.4 acres to 355.7 acres are located adjacent to the installation's eastern and western boundaries. These easements restrict private property owners from making capital improvements on their lands.

Picatinny has more than 800 buildings totaling approximately 4 million square feet (sq ft). Picatinny contains approximately 4,000 acres of forest and an estimated 1,250 acres of wetlands and water bodies, including two lakes, Picatinny Lake and Lake Denmark.

Picatinny's physical assets also include:

- 122 acres of outdoor recreation space, including an 18-hole golf course;
- 84 miles of roads, 31 bridges, and 336,000 sq ft of parking;
- Two federally classified dams and six minor dams;
- 202,000 linear feet of fencing for its perimeter and restricted areas; and
- Utility systems (potable and service water, sanitary sewer, electrical, natural gas, and steam distribution).

3.2.1.1.1 Site History

The 104 buildings under the Proposed Action were used for a variety of manufacturing, research, or support functions and are geographically spread across the installation. The location of the buildings is presented on **Figure 2-1**. Many of the buildings were constructed (or reconstructed) in the period between the Lake Denmark disaster (July 10, 1926) and World War II (WWII). In the lead up to WWII, the arsenal had been divided into manufacturing areas which were organized by building number in sets of 100 (ITSI, 2011):

- 200 Building Area was the Shell Component Loading District;
- 400 Building Area was the Bag Loading Unit;
- 500 Building Area was the Smokeless Propellant Powder Factory;
- 600 Building Area was the Test Area;
- 700 Building Area was the Pyrotechnics District;
- 800 Building Area the Complete Loads/Melt Loading District;
- 1000 Building Area was the Teteryl Production Plant;
- 1300 Building Area was the Nitroglycerin/Mortar Powder District;
- 1400 Area was the Cast Propellant Area; and
- 1600 Building Area was the Pyrotechnics Production District referred to as "Little Picatinny."

All other building number series were used for research, administration, or storage. After annexation of the Navy Hill area, additional numbered series were assigned to those buildings. These functional areas were not defined by exact lines of demarcation but rather general areas grouped by building number. None of the WWII production lines are currently intact; however, in some areas the land use is still reflective of the pre-war groupings.

Preliminary site histories have been compiled for each of the 104 buildings (**Appendix B**). Based on these preliminary histories, each building has been given a category based on EM 385-1-97 and categorized as "limited" or "significant." A building's past usage may have changed multiple times as Picatinny's mission changed from that of a storage depot, to Army arsenal, to research and development facility. For instance, a building that was once used for high-explosives loading may have been converted for use as a storage building (ITSI, 2011).

3.2.1.2 Impacts

3.2.1.2.1 Evaluation Criteria#

Potential impacts on land use are based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions.

In general, a land use impact would be adverse if it met the following criteria:

- Inconsistency or noncompliance with existing land use plans or policies;
- Precluded the viability of existing land use;
- Precluded continued use or occupation of an area;
- Incompatibility with adjacent land use to the extent that public health or safety is threatened; and
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

3.2.1.2.2 Proposed Action

There would be no adverse effects on the land use surrounding Picatinny with the Proposed Action. While all remediation and demolition activities would be limited to areas located on the facility, the potential exists for public roads off-site to be closed for brief intermittent periods of time (several hours) during burning or other remediation activities.

It is not anticipated that proposed activities would result in any long-term adverse or incompatible land use changes on or off Picatinny nor would they alter the relationships of the general land use areas that have been designated in the base-planning guidance documents. The land use categories incorporate developed and undeveloped lands. Proposed remediation and demolition activities would not be in conflict with Picatinny land use policies or objectives. The Proposed Action would not conflict with any applicable land use ordinances off the facility.

Effects associated with removal of construction materials and debris would include short-term minor disruption of land uses due to elevated noise levels and potential interference with roadway access due to construction vehicles. Besides freeing up land for future redevelopment, a long-term beneficial impact, no changes to land use would occur at Picatinny as a result of the Proposed Action.

3.2.1.2.3 No Action Alternative

The No Action Alternative would have no impact on land use over current conditions.

3.2.2 *Air Quality*

3.2.2.1 *Existing Conditions*

The air quality in any given area results from the types and quantities of atmospheric pollutants and pollutant sources within that area, and the surrounding region, as well as the size and characteristics of the physical “air basin,” which are based primarily on surface topography for the basin and climate for the region, but also include the localized or prevailing meteorological conditions.

3.2.2.1.1 *Regional Climate*

Northern New Jersey has a continental temperate climate, which is controlled by weather patterns from the continental interior. The prevailing winds blow from the northwest from October to April and from the southwest from May to September (Gill and Vecchioli, 1985). The average monthly temperature ranges from a high of approximately 72 degrees Fahrenheit (°F) in July to approximately 27°F in January/February (Picatinny, 2008a). The average date of the last freeze of spring and the first freeze of fall are May 2 and October 8, respectively. Located approximately 8 miles southeast of Picatinny, the average annual precipitation at the Boonton monitoring station for the period 1980 to 1990 was 47.19 inches (Gill and Vecchioli, 1985). The least amount of precipitation occurs during February (2.79 inches) while the greatest amount of precipitation occurs during June (5.41 inches).

3.2.2.1.2 *Regulatory Setting*

Federal. The Federal Clean Air Act (CAA) directed the U.S. Environmental Protection Agency (EPA) to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality.

To protect public health and welfare, EPA developed numerical National Ambient Air Quality Standards (NAAQS), for a set of “criteria” air pollutants that have been determined to impact human health and the environment. Air quality in a given region or area is thus measured by the concentration of various pollutants within the atmosphere, expressed in units of ppm or in units of micrograms per cubic meter (µg/m³). NAAQS are currently established for six criteria air pollutants: ozone (O₃), CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM₁₀] and particulates equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb).

EPA established both primary and secondary sets of NAAQS under the provisions of the CAA. The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. **Table 3-2** presents the primary and secondary NAAQS. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels.

EPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. These programs are detailed in State Implementation Plans (SIPs) that must be developed by each state or local regulatory agency and approved by EPA. A SIP compiles regulations, strategies, schedules, and enforcement actions to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by EPA.

The CAA also includes general conformity provisions, which are designed to ensure that the actions of federal or government agencies do not impede local efforts to achieve or maintain attainment with the NAAQS. The General Conformity Rules are promulgated in regulations found in 40 CFR Part 93 and are based on threshold levels (in tons of pollutant per year) that depend upon the nonattainment status that EPA has assigned to a particular region.

A net change in nonattainment pollutants must be calculated for a proposed project, and the government agency must then compare them to the *de minimis* thresholds. The last revision of the General Conformity Rules occurred in April 2010.

**Table 3-2
National Ambient Air Quality Standards**

Pollutant	Standard Value ⁶		Standard Type
Carbon Monoxide (CO)			
8-hour average	9 ppm	(10 mg/m ³)	Primary
1-hour average	35 ppm	(40 mg/m ³)	Primary
Nitrogen Dioxide (NO2)			
Annual arithmetic mean	0.053 ppm	(100 µg/m ³)	Primary and Secondary
1-hour average ¹	0.100 ppm	(188 µg/m ³)	Primary and Secondary
Ozone (O3)			
8-hour average ²	0.075 ppm	(147 µg/m ³)	Primary and Secondary
Lead (Pb)			
3-month average ³		0.15 µg/m ³	Primary and Secondary
Particulate < 10 micrometers (PM ₁₀)			
24-hour average ⁴		150 µg/m ³	Primary and Secondary
Particulate < 2.5 micrometers (PM _{2.5})			
Annual arithmetic mean ⁴		15 µg/m ³	Primary and Secondary
24-hour average ⁴		35 µg/m ³	Primary and Secondary
Sulfur Dioxide (SO ₂)			
1-hour average ⁵	0.075 ppm	(196 µg/m ³)	Primary

Notes:

1 In February 2010, EPA established a new 1-hr standard at a level of 0.100 ppm, based on the 3-year average of the 98th percentile of the yearly distribution concentration, to supplement the existing annual standard.

2 In March 2008, the EPA revised the level of the 8-hour standard to 0.075 ppm. With regard to the secondary standard for O₃, EPA revised the current 8-hour standard by making it identical to the revised primary standard.

3 In November 2008, EPA revised the primary lead standard to 0.15 µg/m³. EPA revised the averaging time to a rolling 3-month average.

4 In October 2006, EPA revised the level of the 24-hour PM_{2.5} standards to 35 µg/m³ and retaining the level of the annual PM_{2.5} standard at 15 µg/m³ and retaining the level of the annual PM_{2.5}.

With regard to primary standards for particle generally less than or equal to 10 µm in diameter (PM₁₀), EPA is retaining the 24-hour standard and revoking the annual PM₁₀ standard.

5 In June 2010, EPA established a new 1-hr SO₂ standard at a level of 75 parts per billion (ppb), based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The EPA is also revoking both the existing 24-hour and annual primary SO₂ standards.

6 Parenthetical value is an approximately equivalent concentration for NO₂, O₃, and SO₂.

ppb: parts per billion; ppm: parts per million; mg/m³: milligrams per cubic meter; µg/m³: micrograms per cubic meter.

The EPA regulation in this latest revision sought to clear up identified issues, reduce specific regulatory burdens, and modify the rules to be helpful to states revising their SIP for implementing the revised NAAQS while assuring federal agency actions continue to conform. Several of the burden reduction measure changes made to the General Conformity applicability in 40 CFR 93.153 include:

- Deleting the provision that requires federal agencies to conduct a conformity determination for regionally significant actions where the direct and indirect emission of any pollutant represent 10% or more of a nonattainment or maintenance area's emission inventory even though the total direct and indirect emissions are below *de minimis* levels.
- Adding new types of actions that federal agencies can include in their "presumed to conform" lists and permitting states to establish in their General Conformity SIPs "presumed to conform" lists for actions within their state.
- Finalizing an exemption for the emissions from stationary sources permitted under the minor source New Source Review (NSR) programs similar to EPA's existing General Conformity regulation which already provides for exemptions for emissions from major NSR sources.
- Establishing procedures to follow to extend the 6-month conformity exemption for actions taken in response to an emergency.

Title V of the CAA Amendments of 1990 requires states and local agencies to implement permitting programs for major stationary sources. A major stationary source is a facility (e.g., plant, base, or activity) that has the potential to emit more than 100 tons annually of any one criteria air pollutant, 10 tons per year (tpy) of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific "major source" permitting thresholds apply in nonattainment areas. In the state of New Jersey for example, the Title V permitting thresholds are 25 tpy of potential volatile organic compounds (VOCs) or nitrogen oxide (NO_x) emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be "significant" if a proposed project's net emission increase meets or exceeds the rate of emissions listed in 40 CFR 52.21(b)(23)(i); or (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 µg/m³ or more [40 CFR 52.21(b)(23)(iii)].

PSD regulations also define ambient air increments, limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's designation as Class I, II, or III [40 CFR 52.21(c)].

State. New Jersey Ambient Air Quality Standards (NJAAQS) have also been established for six specific air pollutants (“criteria” pollutants). Morris County, where Picatinny is located, meets the NAAQS and NJAAQS for all criteria pollutants except O₃ (8-hour) and PM_{2.5}.

Therefore, Morris County is designated by EPA, per Title 40 CFR 81, as a non-attainment area for both O₃ (moderate) and PM_{2.5}.

NJDEP has a risk screening policy for carcinogens and non-carcinogens based on inhalation exposure. Reference concentrations have been developed for acute risk (1-hour, 8-hour, and 24-hour) and chronic risk (annual) for various known chemicals. These reference concentrations serve as screening threshold concentrations above which adverse impacts to human may be indicated. The maximum impact from the project’s emissions is compared with these reference concentrations to ensure no adverse impact.

Picatinny is currently having a short-term air quality impact for lead emissions based on the most recent facility-wide air impact model. Any future operations that would emit lead emissions may further impact the air quality. As operations come online and as more information on projects is obtained, the model should be updated and reviewed to ensure no adverse impacts. However, ambient concentrations of criteria pollutants due to facility operations are within the current NAAQS thresholds set by EPA. The results of the air model represent ongoing activities and do not address past activities.

Ambient air quality data from NJDEP air quality monitoring stations in the region of Picatinny are summarized in **Table 3-3**. For short-term concentrations, the highest and second-highest values over a recent 3-year period are provided. For annual concentrations, the maximum value over the 3-year period is provided. **Table 3-3** also shows the NAAQS for each averaging time for the criteria pollutants. The measured concentrations for criteria pollutants at monitors in the region of Picatinny are below the established standards for all criteria pollutants except for O₃, and PM_{2.5} and generally represent only a small fraction of the NAAQS and NJAAQS values.

Table 3-3
Measured Ambient Concentrations in Vicinity of Picatinny

Pollutant	Monitor Site	Averaging Period	Year	Measured Concentrations (µg/m ³)	Primary NAAQS/ NJAAQS (µg/m ³)	% of NAAQS/ NJAAQS
SO ²	Chester	3-hour	1999	138.6	1300 ^a	10.7
		24-hour	1999	69.3	365	19.0
		Annual ^b	1998-2000	10.7	80	13.3
TSP	Phillipsburg	24-hour	1996	94.0	260	36.2
		Annual ^b	1997	40.4	75	53.9

Pollutant	Monitor Site	Averaging Period	Year	Measured Concentrations ($\mu\text{g}/\text{m}^3$)	Primary NAAQS/ NJAAQS ($\mu\text{g}/\text{m}^3$)	% of NAAQS/ NJAAQS
PM ₁₀	Clifton	24-hour	1998	63.0	150	42.0
		Annual ^c	1998	25.5	50	51.0
PM _{2.5}	Morristown	24-hour	2000	32.4	65	49.8
		Annual	2000	12.9	15	86.0
NO ₂	Chester	1-hour	1998	130.1	470 ^d	27.7
		Annual ^b	1998, 1999	23.0	100	23.0
CO	Morristown	1-hour	1998	7,340	40,000	18.4
		8-hour	1999	4,777	10,000	47.8
Pb	New Brunswick	3-month	1999	0.183	1.5	12.2
O ₃	Chester	1-hour	1999	237.6	235	101.1

Source: Picatinny 2008

a Secondary standard

b Based on 12-month maximum for comparison to NJAAQS; NJAAQS based on calendar year value, which is lower than 12-month maximum

c Based on calendar year value for comparison to NAAQS; no comparable NJAAQS.

d NJDEP 1-hour guideline value; not an ambient standard.

Based on facility-wide potential emission rates, Picatinny is classified as a major source of air contaminants pursuant to the New Jersey Administrative Code (NJAC) Title 7, Chapter 27, Subchapter 22 (NJAC 7:27-22) and is subject to the federal Title V operating permit program requirements specified in that regulation (**Table 3-4**). Picatinny is currently operating under a Title V Operating Permit issued by the NJDEP.

Picatinny's Title V Operating Permit identifies significant, insignificant, and fugitive sources of air contaminant emissions from stationary sources on the installation. New air emission source activities are added to the permit as activities and operations dictate. New air emission sources as well as modifications to existing sources are identified and reviewed in the context of NJAC 7-27 and the CFR.

**Table 3-4
Picatinny Permitted Potential Pollutant Emissions as of November 2011**

Pollutant	Emissions (tons)
Volatile organic compounds (VOCs)	11.2
Nitrogen Oxides (NO _x)	99.2
Carbon monoxide (CO)	44.3
Sulfur dioxide (SO ₂)	9.51
Particulate matter , PM ₁₀	8.38
Total suspended particulates (TSP)	9.16
Lead (Pb)	NA
Hazardous air pollutants (HAPs)	NA

Notes: NA= not available

3.2.2.2 Impacts

3.2.2.2.1 Evaluation Criteria

The environmental consequences to local and regional air quality conditions near a proposed federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. For the purposes of this PEA, the impact in NAAQS “attainment” areas would be considered significant if the net increases in pollutant emissions from the federal action would result in any one of the following scenarios.

1. Cause or contribute to a violation of any national or state ambient air quality standard;
2. Expose sensitive receptors to substantially increased pollutant concentrations; or
3. Exceed any evaluation criteria established by a SIP.

Because Picatinny is located in an area designated as non-attainment for O₃ and PM_{2.5}, a conformity applicability analysis is required to determine whether the Proposed Action is subject to the Conformity Rule. With respect to the General Conformity Rule, effects on air quality would be considered significant and, therefore, subject to an evaluation to determine compliance with the General Conformity Rule, if:

- The proposed federal action does not relate to transportation plans, programs, and projects developed, funded, or approved under Title 23 United States Code (USC) or the Federal Transit Act, and
- The Proposed Action-related direct and indirect emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been re-designated as a maintenance area.

The *de minimis* threshold emission rates were established by EPA in the General Conformity Rule to focus analysis requirements on those federal actions with the potential to have “significant” air quality impacts. **Table 3-5** presents these thresholds, by regulated pollutant.

These *de minimis* thresholds are similar, in most cases, to the definitions for major stationary sources of criteria and precursors to criteria pollutants under the CAA's NSR Program.

As shown in **Table 3-5**, *de minimis* thresholds vary depending on the severity of the nonattainment area classification.

Table 3-5
Conformity *de minimis* Emission Thresholds

Pollutant	Status	Classification	<i>de minimis</i> Limit (tpy)
Ozone (measured as NO _x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO _x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO _x)
		Outside ozone transport region	100
Carbon Monoxide (CO)	Nonattainment/maintenance	All	100
Particulate Matter (PM ₁₀)	Nonattainment/maintenance	Serious	70
		Moderate	100
		Not applicable	100
Particulate Matter (PM _{2.5})	Nonattainment/maintenance	Direct Emissions	100
		SO ₂ precursors	100
		NO _x precursors	100
Sulfur Dioxide (SO ₂)	Nonattainment/maintenance	Not applicable	100
Nitrogen Oxides (NO _x)	Nonattainment/maintenance	Not applicable	100

Source: 40 CFR 93.153 (b)
tpy: tons per year

In addition to the *de minimis* emission thresholds, federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Federal Class I area (e.g., wilderness area greater than 5,000 acres or national park greater than 6,000 acres) and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 µg/m³ or more. Although PSD rules apply only to stationary sources of emissions, for the purposes of this PEA, such an impact to a Class I area would be considered adverse.

3.2.2.2.2 Proposed Action

Appendix C summarizes the total emissions associated with the Proposed Action. Construction-related emissions would be temporary and only occur during the remediation and demolition period for these buildings. The emissions related to open burning of the buildings would be also temporary and would last only about 2 hours per building.

When compared to the *de minimis* values of 100 tpy of NO_x and VOCs and 50 tpy for PM_{2.5}, the emissions associated with implementing the Proposed Action are below the *de minimis* levels. As a result, the Proposed Action is not significant and is not subject to the General Conformity Rule requirements.

The annual emissions of the non-attainment criteria pollutants from proposed activities are presented in **Appendix C**.

Stationary Sources and New Source Review. Local and regional pollutant impacts resulting from direct and indirect emissions from stationary emission sources are addressed through federal and state permitting program requirements under NSR regulations (40 CFR 51 and 52). Local stationary source permits are issued and enforced by the NJDEP. As noted previously, Picatinny has appropriate permits in place and has met all applicable permitting requirements and conditions for existing stationary devices.

No new or modified stationary sources are anticipated as part of the Proposed Action. Picatinny has a current “Open Burning” permit that includes “burn-in-place” building demolition activities.

In view of the emissions from open burning of the five buildings contemplated in the Proposed Action, an air quality impact analysis was conducted to evaluate the impact on applicable NAAQS. The details of the analysis are included in **Appendix E** and a brief description is as follows.

The air quality analysis used EPA’s approved regulatory model AERMOD with five latest available years (2006-2010) of hourly meteorological data from Newark, New Jersey. Receptors were placed at the fence line and to 1 kilometer extending beyond the fence line in all directions to capture the maximum impact. All regulatory default parameters were used in AERMOD.

The following operational restrictions in the open burn permit of the Picatinny Arsenal were considered in the analysis:

- Only one building would be burned in a day.
- All buildings would be burned during daylight hours only. Therefore, it was assumed that the burn will not start prior to 0700 hours in any day.
- The wind speed during the burn would be limited to maximum 17 mph and minimum of 3 mph.

Each building was considered as a point source of emission. Stack height was considered to be the height of the building and stack diameter was estimated from the open roof area of the building during the burn. Stack gas temperature out of the building was estimated at 1,880°F based on estimates from previous building burns.

Wood and fuel oil was considered as fuel to be used for burning the buildings over a 2-hour period for each building.

In the first hour, it was assumed that all of fuel oil and part of the wood fuel and dunnage will be combusted. In the second hour, all of the remaining wood and dunnage will be combusted. Emission rates of criteria pollutants and hazardous air pollutants were estimated separately for the 2 hours using EPA's AP-42 guidance.

Both hours were modeled separately to estimate maximum acute (1-hour) impact and impacts at other averaging times. It was assumed that only one building would be burned in a week; so for averaging time up to 24 hours, the highest of the impact from all five buildings was considered. For longer term averages (e.g. 3-month and annual), cumulative impact from all buildings were considered as all of the buildings could be burned in these periods.

The results of the analysis are shown in **Table 3-6**. The predicted air quality impacts of the building burns are well below the respective NAAQS and NJAAQS for all of the regulated pollutants, indicating that the building burns would not exceed the NAAQS/NJAAQS. The recently promulgated 1-hour SO₂ and 1-hour NO₂ NAAQS are not evaluated because each building burn will be a one-time event and due to their statistical format, these 1-hour NAAQS are not appropriate for these types of one-time events.

Table 3-6
Evaluation of Ambient Impact – NAAQS

Attainment Criteria Pollutant	Averaging Period	Predicted Max Impact (ug/m3)	Impact from Building No.	NAAQS/NJAAQS (ug/m3)	% of NAAQS
CO	1-hour	13,279	210	40,000	33.20%
CO	8-hour	1,358.9	210	10,000	13.59%
NO ₂	Annual	0.04	Cumulative impact from all buildings	100	0.04%
Total Suspended Particulates (TSP)	24-hour		210	260	
Total Suspended Particulates (TSP)	Annual		Cumulative impact from all buildings	75	
Lead (Pb)	3-month average	1.42E-07	Cumulative impact from all buildings	0.15	Negligible

Notes:

1: Predicted impacts are based on 5 years of hourly meteorological data (2006-2010) from Newark Airport.

2: 1-hour SO₂ and 1-hour NO₂ NAAQS were not included in the analysis due to statistical format of these standards which are not appropriate for one-time events.

3: TSP does not have any NAAQS; the values shown are for New Jersey Ambient Air Quality Standard (NJAAQS)

National Emissions Standards for Hazardous Air Pollutants. Because Picatinny Arsenal does not have the potential to emit more than 25 tpy of hazardous air pollutants, most hazardous air pollutant-emitting activities on base are not subject to regulation under National Emissions Standards for Hazardous Air Pollutants (NESHAP), as promulgated in 40 CFR Parts 61 and 63. NESHAP standards require emissions control measures and detailed recordkeeping to show compliance with regulatory restrictions on the types of relevant materials.

Specific NESHAP to which activities at the Arsenal may be subject include 40 CFR 61 Subpart M, Asbestos Remediation.

NJDEP has published reference concentrations for short-term inhalation exposures for several chemicals. These ambient concentrations are not to be exceeded for the averaging time indicated for the chemical. Several of these chemicals are expected to be emitted from the combustion of wood and fuel oil during building burns. Therefore, short-term (i.e. maximum 1-hour, 8-hour, and 24-hour) air quality impact for the potentially emitted chemicals on NJDEP reference concentration list were determined using air dispersion modeling. Impact of each building was separately estimated and the maximum impact for each chemical was compared with the relevant reference concentration. The modeling procedure was the same as described above for NAAQS except that sensitive receptors within the Arsenal were also included in the analysis. The sensitive receptors included were:

- Child Development Center Receptor Location (Buffington Road)
- Child Development Center Receptor Location (Northeast)
- Modeled Off-site Residential Receptor Location for Explosives Waste Incinerator
- Open Detonation Area (ODA)
- Proposed "Combined" On-site Office Workers Receptor Location
- Proposed "Combined" Residential Receptor Location
- Proposed Off-site Residential Receptor Location for Controlled Detonation Chamber and Burning Ground
- Proposed Off-site Residential Receptor Location for ODA

Table 3-7 shows the results of the evaluation for the Hazardous Air Pollutants (HAPs) under the NJDEP reference concentration list of August 2011. All of the HAPs showed negligible impact compared to the respective reference concentrations.

**Table 3-7
Evaluation of Ambient Impact - HAPs**

HAPs	Averaging Period	NJ Inhalation Exposure (ug/m3)	Predicted Max Impact (ug/m3)	% of NJ Inhalation Exposure
Arsenic	1-hr	0.2	8.39E-05	0.04%
Formaldehyde	1-hr	55	9.14E-03	0.02%
Methyl Ethyl	1-hr	13000	16.69	0.13%

HAPs	Averaging Period	NJ Inhalation Exposure (ug/m3)	Predicted Max Impact (ug/m3)	% of NJ Inhalation Exposure
Ketone				
Nickel	1-hr	6	8.05E-04	0.01%
o-Xylene	1-hr	22000	11.62	0.05%
Manganese	8-hr	0.17	1.00E-03	0.59%
Lead	24-hr	0.10	3.96E-06	0.00%
Arsenic	Annual	0.015	1.55E-08	0.00%
Beryllium	Annual	0.02	1.17E-08	0.00%
Cadmium	Annual	0.02	3.10E-07	0.00%
Formaldehyde	Annual	9	1.69E-06	0.00%
Furfural	Annual	50	6.60E-03	0.01%
Manganese	Annual	0.05	2.33E-06	0.00%
Mercury	Annual	0.3	1.17E-08	0.00%
Methyl Ethyl Ketone	Annual	5000	3.94E-03	0.00%
Naphthalene	Annual	3.00	3.91E-03	0.13%
Nickel	Annual	0.05	2.02E-07	0.00%
o-Xylene	Annual	100	2.74E-03	0.00%
Selenium	Annual	20	5.83E-08	0.00%

Notes:

1: Predicted impacts are based on 5-years of hourly meteorological data (2006-2010) from Newark Airport.

2: NJ Inhalation Exposure concentrations were obtained from: "Reference Concentration for Short-term Inhalation Exposure," August 2011: New Jersey Department of Environmental Protection, Division of Air Quality Bureau of Technical Services Air Quality Evaluation Section

Conformity. Because nonattainment areas are affected by this Proposed Action, the U. S. Army must comply with the federal General Conformity Rule. To do so, an analysis has been completed to ensure that, given the changes in direct and indirect emissions of the O₃ precursors (NO_x and VOCs), direct PM_{2.5}, and PM_{2.5} precursors (SO₂ and NO_x), the Proposed Action would be in conformity with CAA requirements. The Conformity Determination requirements specified in this rule can be avoided if the project nonattainment pollutant rate increase resulting from the Proposed Action is below *de minimis* threshold levels for each nonattainment pollutant. For purposes of determining conformity in these nonattainment areas, projected regulated pollutant emissions associated with the Proposed Action were estimated.

Based on a review of current and proposed Picatinny activities, it has been determined that the potential sources of PM_{2.5}, SO₂, NO_x and VOC pollutant emissions associated with the Proposed Action would be from (1) remediation/demolition activities associated with the Proposed Action and (2) motor vehicle emissions from construction worker commuting. Under the Proposed Action, no specific timeline for implementation of the proposed activities has been established. To develop a worst case annual emission scenario, it was conservatively assumed that all construction activities would be completed within one calendar year.

The scope of the analysis was limited to those operations or activities that result in emissions that would be directly or indirectly attributable to the implementation of the Proposed Action.

The potential air quality impacts have been assessed based on the characteristics of the Proposed Action and are presented below.

Direct and Indirect Emissions. Air quality analysis described above shows that the Proposed Action would not result in significant short-term or long-term adverse impacts to air quality. While there are some anticipated impacts they are less than significant. Results are presented in **Appendix C**.

Mitigation Measures. Short-term construction impacts can be mitigated through the use of proper control measures, including routine maintenance of all construction equipment, regular maintenance of the emission control devices on all construction equipment, and covering/wetting exposed soils to reduce fugitive dust during construction.

Contractors will be required to submit a site-specific remediation work plan including plans to control impacts to air quality during proposed remediation/demolition. The following is a summary of proposed mitigation measures under the Proposed Action.

- Contractors will only use heavy construction equipment with emissions control technology to meet New Jersey Emissions Standards;
- Restrict engine idling to 10-minute interval maximums;
- Approved non-toxic soil binders will be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking areas throughout construction, to reduce fugitive dust emissions.
- Water the disturbed areas of the active construction sites at least three times per day, and more often if uncontrolled fugitive dust is noted; and
- Schedule construction delivery traffic outside of peak-hour traffic patterns for the local community, and other construction traffic will be minimized to the extent feasible.

More detailed air quality mitigation measures will be prepared during the design phase.

3.2.2.2.3 No Action Alternative

The No Action Alternative would have no adverse impact on air quality.

3.2.3 Water Resources

3.2.3.1 Existing Conditions

Water resources include groundwater, surface water, and stormwater. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

3.2.3.1.1 Groundwater

Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications.

Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

The principal source of groundwater in the Green Pond Valley is local precipitation. The low permeability and the steep slopes of Green Pond Mountain and Copperas Mountain to the northwest and the unnamed ridge to the southeast restrict the infiltration of precipitation into these mountains. Most of the precipitation that falls on the mountains flows overland to their bases and into the highly permeable glacial sediments (ITSI, 2011). The small amount of precipitation that enters these ridges flows down through shallow fractures to the glacial sediments in the valley. Effectively, all discharge from the groundwater system flows to surface water bodies, primarily the Rockaway River and Green Pond Brook (ITSI, 2011). **Figure 3-2** depicts water resources in the Picatinny area.

Groundwater occurs in the valley glacial materials and in the bedrock at Picatinny. South of Picatinny Lake, where the hydrogeology has been studied in detail, the bedrock and glacial sediments at Picatinny were divided into a sequence of six permeable layers and five intervening, low-permeability layers on the basis of the general hydraulic properties of the sediments. Sand units exceeding 10 ft in thickness can act as pathways for contaminants and, therefore, were designated as permeable layers (ITSI, 2011).

Confining units, such as thick clay units, are not present at Picatinny; however, units containing clay and/or silt that impede the flow of groundwater are present. The thickness of the weathered zone determined from drilling logs ranges from 24 ft at well 27-84 near Picatinny Lake to 136 ft at well 27-250 near the southern boundary of Picatinny. The bedrock beneath the glacial sediments at Picatinny weathers to a clay, which fills the fractures in the bedrock and impedes the flow of water. Therefore, the weathered zone of the bedrock was designated as a low-permeability layer (ITSI, 2011).

North of Picatinny Lake, where the glacial sediments are less thick, the hydrogeology is less complicated. The unconsolidated sediments can be divided into one or two layers with no significant, continuous, low-permeability unit. Bedrock in this area is also less weathered than bedrock encountered south of Picatinny Lake. Environmental investigation of bedrock determined that fractures are tight and decrease with depth. The groundwater located within the confines of Picatinny is found in sediments deposited during the Quaternary Period within the last one million years.

Several areas at Picatinny have groundwater affected by past activities. For example, tetrachloroethene (PCE), trichloroethene (TCE), and explosive compounds such as RDX (cyclotrimethylene trinitramine) have been detected in the groundwater at the mid-valley portion of the Arsenal; PCE, TCE, and vinyl chloride have been detected in the groundwater beneath the golf course (Building 24 plume); contaminated groundwater at the Arsenal is being addressed by the IRP for the aforementioned plumes and all other groundwater contaminated sites in the Installation Action Plan (IAP) (Picatinny Arsenal, 2011b).

3.2.3.1.2 Surface Water

Surface water resources consist of lakes, rivers, and streams.

Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Picatinny is located in the upper part of the Passaic River drainage basin. Green Pond Brook, which is the primary drainage feature of Picatinny, joins the Rockaway River approximately 1 mile south of Picatinny. From this confluence, the Rockaway River flows east through the Boonton Reservoir, an 8.5-billion-gallon water source for Jersey City. The Rockaway River then flows southeast, merging with the Passaic River, which discharges into Newark Bay at Elizabeth, New Jersey.

All surface water on Picatinny has been classified as C-1 by the NJDEP Surface Water Quality Standards, which means a 300-ft Special Water Resource Protection Area Buffer zone is required along these surface water bodies. Surface water is a major component of the Picatinny landscape, evidenced by the two lakes, eight ponds, four perennial brooks, several intermittent runs, three freshet waterfalls, and a few springs and seeps scattered throughout the installation. Picatinny falls within the northern portion of New Jersey's delineated Watershed Management Area Six in the Rockaway Sub-watershed. Watershed Management Area Six serves as the primary water supply for northern New Jersey. Green Pond Brook joins the Rockaway River about 1 mile downstream of the installation (Picatinny, 2009).

Picatinny's two large man-made lakes are essential to daily operations. Lake Denmark is located at the northern end of the valley at an elevation of 840 ft above mean sea level. It has a maximum depth of about 12 ft and covers 174 acres. Burnt Meadow Brook feeds Lake Denmark at the northern end of the lake. The lake is about 7,000 ft long with a capacity of approximately 331 million gallons. Lake Denmark is classified by NJDEP as Freshwater 2 Non-trout (FW2-NT) (Picatinny, 2008a).

Picatinny Lake is fed by Green Pond Brook and water released from Lake Denmark. The lake is approximately 5,000 ft long, 11 ft deep, 108 acres in size, and has a capacity of approximately 164 million gallons. Picatinny Lake has been classified by NJDEP as FW2-NT. Both lakes are sources of non-potable water that also support recreational fishing.

Picatinny's lakes and streams follow the topographical pattern of the valley and drain from northeast to southwest. Green Pond Brook and Ames Brook carry water off the installation.

Green Pond Brook is classified as FW2-NT Maintenance below Picatinny Lake (Picatinny, 2008a). Green Pond Brook, which flows through the installation, is Picatinny's primary natural drainage. Its tributaries are Bear Swamp Brook and Burnt Meadow Brook. Bear Swamp Brook is classified as FW2-NT. Burnt Meadow Brook and the reach of Green Pond Brook above the confluence into Picatinny Lake are listed as FW2-NT Producing, Category 1. At the southwest end of the installation, Green Pond Brook feeds into natural wetlands before emptying into the Rockaway River (Picatinny, 2008a).

The top of the unnamed ridge is a water divide with all drainage to the east flowing southeast, rather than west to the installation valley. Ames Brook exits the installation and drains into the valley to the southeast.

Robinson Run and several unnamed tributaries drain the southeastern central portion of Picatinny. Robinson Run and its tributaries discharge into Green Pond Brook to the northwest. Numerous other small ponds and reservoirs that serve as collection basins also influence local drainage patterns at Picatinny. As of June 16, 2008, all water systems (lakes, streams, named and unnamed tributaries with defined bed and bank and drainage area more than 50 acres) are Category 1 with a 300-ft riparian buffer on each side (Picatinny, 2008a).

3.2.3.1.3 Storm Water

Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. The proposed project would follow best storm water management practices as discussed under **Section 3.2.3.2.2, Mitigation Measures**. Storm water flows, which may be exacerbated by high proportions of impervious surfaces associated with buildings, roads, parking lots, and airfields are important to the management of surface water. Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. Higher densities of development require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban centers.

An extensive network of surface and subsurface conduits, sewers, and culverts covers Picatinny. Water control structures are located at three dams on the property to control storm drainage.

Other storm drainage structures located at Picatinny include drop inlets with underground conduit, flumes located along road shoulders, and spillways located at the outlets of all lakes and ponds. Steam and electrical utility lines and easements cross numerous storm water management facilities across the installation. Impervious areas include buildings, roads, and parking areas. Two types of parking materials (asphalt and sand or crushed stone) are permitted for parking surfaces at Picatinny. Sand or crushed stone are environmentally preferable materials for parking lots as they are pervious. Storm water drainage associated with the facility's parking areas is tied into the existing Picatinny storm water system (Picatinny, 2009).

3.2.3.2 *Impacts*

3.2.3.2.1 *Evaluation Criteria*

Evaluation criteria for impacts on water resources are based on water availability, quality, use, and associated regulations. The Proposed Action would be adverse if it does one or more of the following:

- Reduces water availability or supply to existing users;
- Overdrafts groundwater basins;
- Exceeds safe annual yield of water supply sources;
- Affects water quality adversely;
- Endangers public health by creating or worsening health hazard conditions;
- Threatens or damages unique hydrologic characteristics; and
- Violates established laws or regulations adopted to protect water resources.

3.2.3.2.2 *Proposed Action*

Groundwater and Surface Water. The Proposed Action would result in a long-term beneficial impact to groundwater and surface water from demolition/structure slab removal that could create conditions that would offer more absorption capacity than the current conditions.

More stormwater would be absorbed into the ground, creating a slight decrease in runoff in the area of the removed building slabs. Runoff contaminants that might result from the remediation/demolition operations would be contained at the worksite.

Implementation of the Proposed Action would not adversely affect the installation's water resources and regulatory requirements would be followed by the contractor. Proposed remediation and demolition operations would not involve the addition of hazardous materials/wastes other than what already exists in association with each building (**Appendix B**). Although the Proposed Action would not pose any new risks, minor adverse effects on groundwater and surface water would still be possible in the event of a spill. Management plans are in place for hazardous or harmful materials should a spill occur and are contained in the *Final Site-specific Remediation Work Plan* (ITSI, 2011). This plan describes actions that employees would take to respond to an emergency, ensure employee safety, and response agency reporting procedures that may be required.

Storm Water. The Proposed Action would disturb more than 1 acre of land and therefore must comply with the Public Complex Municipal Separate Storm Sewer System (MS4) regulations. Under the Public Complex Permit, the Post Construction Program Design Checklist for Individual Projects must be completed and submitted before the project construction can be approved.

Mitigation Measures. Building and utilities removal activities will be managed and controlled to avoid pollution of surface and groundwater. All water used in decontamination activities will be captured and tested for contamination.

Toxic or hazardous chemicals will not be applied to soil or vegetation as part of interim measures actions.

All land-disturbing activities will be planned and conducted to minimize the size of the area to be exposed at any one time and length of time of exposure. Excavation and exposure of bare soil would occur during the removal of subsurface utilities.

Surface water runoff originating upgrate of these exposed areas will be controlled to reduce sediment loss during time of exposure. After building demolition, best storm water management practices will be used and whenever possible, same day cleanup will be performed to minimize potential groundwater impact.

The Erosion and Sediment Control Plan (E&SCP) defines steps to take to minimize and/or eliminate erosion and sedimentation during completion of remediation. The plan was developed in accordance with guidelines and rules provided in the Soil Erosion and Sedimentation Control Act, NJAC 2:90-1.

The contractor will install and maintain sediment and erosion control features at each building where intrusive work is to be performed.

The erosion control measures will follow the details of the project's E&SCP, which takes into account surface water features, wetlands, and other sensitive areas. Minimum BMPs to be used will include a construction site entrance, silt fencing, storm drain protection, straw mulching, and reseedling of bare surfaces as soon as possible.

3.2.3.2.3 *No Action Alternative*

The No Action Alternative would have no adverse impact on water resources.

3.2.4 *Soil Contamination*

3.2.4.1 *Existing Conditions*

Past waste disposal practices and releases have contaminated groundwater, soil, and sediments at specific sites. EPA placed Picatinny on the National Priorities List (NPL) in March 1990. In 1992, under the requirements of the CERCLA, the U. S. Army identified 175 contaminated or potentially contaminated sites on Picatinny. Past site activities created contamination that included VOCs, semivolatile organics, metals, PCB, benzo(a)pyrene, nitroaromatics, propellants, radiological material, and pesticides. These contaminated sites are discussed in more detail in **Section 3.2.12.1.6** and in the Picatinny IAP (Picatinny, 2011b). Remedial actions have included soil removal, groundwater remediation, and implementation of engineering and land use controls to minimize the risk of exposure.

The Military Munitions Response Program (MMRP) was established in 2001 to manage the environmental, health and safety issues presented by UXO, discarded military munitions (DMM), and munitions constituents (MC).

The MMRP is an element of the DERP, under which the Secretary of Defense carries out environmental restoration resulting from historical activities.

The DoD established the MMRP to reflect the statutory program goals established for the DERP, to enhance understanding of the nature of munitions response sites, and to manage response activities more effectively. The DERP is intended to address environmental problems remaining from past practices, so the MMRP does not cover munitions responses for areas currently active as defined by current MMRP guidance (Picatinny, 2008a). Important elements of the MMRP are as follows:

- Requires the DoD to establish and maintain an inventory of non-operational ranges that contain or are suspected to contain UXO, DMM or MC;
- Establishes the requirement to identify, characterize, track, and report data on MMRP sites and response actions;
- Requires a sequencing process to prioritize site cleanup and site-specific cost estimates to complete the response; and
- Requires installations to program and budget for MMRP response actions.

Picatinny completed a comprehensive inventory of its non-operational training ranges and defense sites with UXO, DMM, or MC. Picatinny is currently conducting a remedial investigation for its MMRP sites.

3.2.4.2 Impacts

This section evaluates the potential impacts on soil contamination under the Proposed Action and the No Action Alternative.

3.2.4.2.1 Proposed Action

Excavation for the Proposed Action would be limited to what is required for subsurface utility, such as drywells, disposal pits, and concrete slab removal. These activities would not generate any excess soil. At the conclusion of these intrusive activities, the area would be graded to promote positive drainage and preclude ponding. Thus, it is anticipated that proposed activities would result in negligible to minor short-term adverse impacts.

Mitigation Measures. Prior to land-disturbing activities at IRP sites, IRP data will be reviewed to determine if excavation would be conducted in contaminated areas. Land disturbance in these areas will be minimized, and sediment erosion control measures will be performed to minimize the potential for spreading contaminated soil.

Contractors will take post-excavation samples to ensure any potential soil contamination is appropriately documented so it can be addressed by the IRP or other appropriate program. These samples will be taken at dry wells or disposal pits that were not addressed by the IRP.

3.2.4.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on soils.

However, existing potentially contaminated soil would remain and would not be assessed and/or removed off-site for proper disposal.

3.2.5 Soil Erosion

3.2.5.1 Existing Conditions

Morris County regulations require development projects that involve the disturbance of more than 5,000 sq ft of soil to prepare, submit, and obtain approval of an E&SCP prior to initiation of earth moving. The objective of this plan is to reduce construction-related erosion and sedimentation.

An E&SCP would not be required for the removal of subsurface utilities because the land disturbance at a building would be less than 5,000 sq ft. For cases during demolition activities where greater than 5,000 sq ft of disturbance would occur, an E&SCP would be submitted to the Morris County Soil Conservation District.

3.2.5.2 Impacts

This section evaluates the potential impacts on soil erosion under the Proposed Action and the No Action Alternative.

3.2.5.2.1 Proposed Action

It is likely that excavation for the Proposed Action would result in soil erosion in the immediate vicinity of buildings to be remediated and/or demolished. Thus, it is anticipated that proposed activities would result in negligible to minor short-term adverse impacts. Adherence to the Picatinny Arsenal Soil Clearance Policy and implementation of erosion control best management practices would minimize the potential effects of soil erosion.

Mitigation Measures. Direct impacts to water resources, such as the degradation of water quality from nonpoint source pollution (e.g., uncontrolled storm water runoff and soil erosion), would be minimal because of BMPs designed to reduce such impacts.

Erosion control measures in accordance with installation specifications for construction projects will be implemented. Soil erosion and siltation control measures will include the use of silt fencing, straw bales, and/or hydro-mulching in and adjacent to construction areas. Installation contractors for the proposed action will also be responsible for complying with SOPs and applicable health and safety regulations.

3.2.5.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on soil erosion.

3.2.6 Wetlands

3.2.6.1 Existing Conditions

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat detention, and erosion protection. Wetlands are protected as a subset of the “waters of the United States” under Section 404 of the Clean Water Act (CWA).

The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the United States, including wetlands.

The National Wetlands Inventory (NWI), a department within the U.S. Fish and Wildlife Service (USFWS); EPA; and the Natural Resources Conservation Service help in identifying wetlands. USACE defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 328).

EO 11990, Protection of Wetlands, May 24, 1977, directs federal agencies to consider alternatives to avoid adverse effects on and incompatible development in wetlands. Federal agencies are directed to avoid new construction in wetlands, unless the agency finds there is no practical alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland.

Wetlands at Picatinny are primarily composed of muck and peat formed in poorly drained glacial soils. These areas include emergent wetlands (defined as wetland systems dominated by herbaceous cover) and forested wetlands (defined as wetlands that contain a prominent over-story). Most of the wet areas are located in the Green Pond Brook flood plain at the southern end of the installation. This area has been highly disturbed in the past and the southernmost 5,000 ft of Green Pond Brook runs through floodplain wetlands that were drained by a series of constructed drainage ditches. This segment of Green Pond Brook was channeled by dredging in 1944 (Picatinny, 2008a).

These areas also contain a network of upland areas that were created from fill material. The upland areas provided sites for buildings, railroad beds, roadways, parking areas, and work areas. A second major flood plain wetland is located in the vicinity of Burnt Meadow Brook, north of Lake Denmark. Other smaller wet areas occur as narrow fringes along lakes, streams, and seepages.

There are an estimated 1,250 acres of wetlands at Picatinny (**Figure 3-3**). This is based on NWI maps as well as various planning-level surveys, including a study conducted by the Waterway Experiment Station in 1994. Because wetland size and location has only been estimated by NWI mapping, site-specific jurisdictional delineations are needed to assess the actual extent of wetlands (Picatinny, 2008a).

Outside of isolated project sites, the wetlands at Picatinny have not been delineated jurisdictionally. Depending on the circumstances, construction or other disturbance within the transitional buffer may require NJDEP wetland permitting (NJAC 7:7A, subchapter 7) and mitigation (NJAC 7:7A, subchapter 15), NJDEP Flood Hazard Act permitting, and/or USFWS consultation. These actions may require mitigation measures, such as setting aside other land for transitional buffers or establishing replacement wetlands at a negotiated ratio. For planning purposes, when designating future land uses or siting new construction, the practical strategy is to delineate potential wetland areas to know the location of wetlands and their transitional zone buffers, riparian corridors, stream encroachment, and flood plains.

3.2.6.2 Impacts

The level of impact on wetlands is based on:

- Importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- Proportion of the resource that would be affected relative to its occurrence in the region;
- Sensitivity of the resource to the proposed activities; and
- Duration of ecological ramifications.

The impacts on wetlands are adverse if species or habitats of high concern are negatively affected over relatively large areas. Impacts are also considered adverse if disturbances cause reductions in population size or distribution of a species of high concern.

3.2.6.2.1 Proposed Action

Twenty-eight buildings totaling 69,714 sq ft are located within the 150-ft transition area of known wetlands at Picatinny. New Jersey established this distance for wetlands that may support threatened and endangered species. Dependent upon the type of remedial action necessary at each building, dry grass, brush, dead wood, heavy clippings, and invasive trees would have to be cut and cleared from around each building. The buffer may be as large as 50 ft but in many cases would not exceed 20 ft. The loss of trees and brush would be a temporary condition because the project's goal is to remove structures, reseed, and allow the areas to return to a natural state. It is anticipated that proposed building remediation and demolition activities would disturb some wetlands and the transition area around wetlands (**Table 3-8**). **Figure 3-3** outlines the known wetlands and wetlands buffer areas on the installation, and **Figure 3-4** to **Figure 3-7** delineate the wetland areas affected by the buildings listed in **Table 3-8**.

Table 3-8
Buildings Associated with the Proposed Action that May Affect Wetlands

Building Numbers			
48	168	1178	3603
50	178	1180	3604
51	197	1181	1242A
154	210	1182	1510A
164	408	1186	429A
166	652	1511	477F
167	1031	3236	641G

Living vegetative disturbances are also regulated within 300 feet of a riparian zone. **Table 3-9** presents buildings associated with the Proposed Action that may affect this riparian zone buffer. Vegetative disturbances between 20 and 50 feet should be limited to combustible materials (such as long dry grass or brush, heavy clippings or dead wood).

Table 3-9
Buildings Associated with the C-1 Riparian Zone Buffer

Building Numbers						
48	566	1186	1380	3236	3617	477F
50	634	1351	1400	3603	3628	525A
51	646	1354	1402	3604	1242A	611C
154	902	1357	1410	3605	1354A	611D
164	903	1359	1426	3606	1357A	617E
166	1031	1361	1511	3608	1359A	636B
167	1093	1362	1517	3609	1462A	717C
168	1094	1363	1518	3611	1510A	810A
178	1178	1364	1519	3612	1517A	816A
197	1180	1372	1520	3613	1518A	816B
210	1181	1373	1521	3615	429A	
408	1182	1377	1522	3616	454B	

During proposed activities, erosion and sedimentation, as well as the potential for spills of fuel and oil from remediation and demolition activities, could cause short-term degradation of wetlands within and adjacent to the project areas. However, adherence to the mitigation measures described below would reduce the potential for erosion and sedimentation, as well as spills, during construction.

Therefore, short-term, adverse impacts to wetlands are anticipated to be negligible to minor. Picatinny does not anticipate the long-term loss of wetland habitat from implementation of the Proposed Action. To reduce potential impacts to wetlands in the project area, Picatinny would consider ways to avoid such areas to the extent practical during remediation and demolition activities.

Once implementation of the Proposed Action is complete, decreases in impervious surfaces in the project area would reduce sheet flow across the ground surface, which is likely to result in a decrease of stormwater discharged to wetlands in and adjacent to the project areas.

Thus, potential long-term beneficial impacts would occur.

Mitigation Measures. To reduce potential impacts to wetlands in the proposed remediation and demolition areas, Picatinny would consider ways to avoid such areas to the extent practical during project implementation. Proposed mitigation measures under the Proposed Action include:

- Removing any hazardous materials from the building before demolishing;
- Upon project completion, ensuring no mounding and sufficient soil coverage for revegetation of indigenous species;
- Properly stabilizing all disturbed areas;
- No clearing, cutting, or removal of vegetation in a transition area except for vegetation within a maximum of a 50-ft buffer from the structure and in some cases 25-ft access corridors if such a disturbance is determined necessary to facilitate its removal; and
- Replanting all vegetated areas temporarily disturbed within the riparian zone with indigenous, non-invasive species upon project completion.

Although these measures are intended to protect water resources, they also serve to mitigate impacts to wetlands.

The proposed project will comply with federal, state, and local regulations governing construction activities. An E&SCP will be submitted to Morris County and certified prior to proposed remediation and demolition activities that would disturb in excess of 5,000 sq ft.

Picatinny will review pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the proposed activities will not have a major impact on wetlands. This plan also recommends several housekeeping measures that will be enforced, such as hazardous materials/waste storage and spill response. Spill prevention, control, and countermeasure procedures would also reduce the potential for any hazardous substances used during construction to be discharged to wetlands.

Picatinny would be required to apply for an individual permit under New Jersey's Freshwater Wetlands Act if there were any impacts to wetlands. Further consultation with state and federal agencies (e.g., EPA and USFWS) would be conducted as part of the NJDEP permitting process. Picatinny would be subject to the special conditions and restrictions of the permit, which would likely require compensatory mitigation to reduce the impacts, such as replacement of wetland and riparian habitats.

Upon completion of the project the square footage of the building footprint inside the regulation area will be calculated to bank credit for future land use disturbances inside a riparian zone.

3.2.6.2.2 No Action Alternative#

The No Action Alternative would have no adverse impact on wetlands.

3.2.7 Floodplains

3.2.7.1 Existing Conditions

Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. Such lands might be subject to periodic or infrequent inundation due to rain or melting snow. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is the area that has a 1% chance of inundation by a flood event in a given year.

EO 11988, Floodplain Management, requires federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps, which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs federal agencies to avoid floodplains unless the agency determines that there is no practical alternative. Where the only practical alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988 outlined in the FEMA document Further Advice on EO 11988 Floodplain Management.

As a planning tool, the NEPA process incorporates floodplain management through analysis and public coordination of the PEA.

Picatinny contains numerous surface watercourses, varying from several feet in width to more than 30 ft wide during normal conditions. Steep and rocky streambeds are common and these characteristics promote rapid runoff during periods of extreme precipitation or snowmelt. The dense tree and vegetation cover on other portions of the installation tend to retard and reduce the runoff contributing to flooding.

A hydrologic analysis was performed to identify and delineate areas on Picatinny that would be inundated by a 100-year flood. The 100-year flood plain associated with Green Pond Brook encompasses approximately 300 acres and primarily affects the lowlands between Parker Road and Phipps Road south of Shinkle Road. No development can occur within a floodplain without an NJDEP permit in addition to 0% net fill. The 100-year flood zone is shown in **Figure 3-3** (Picatinny, 2008a).

Picatinny prepared a Flood Study in 2003 (Picatinny, 2008a) to investigate the frequency and severity of flood hazards on the arsenal. The study area included Lake Denmark Dam traveling to Picatinny Lake and from Picatinny Lake down SR 15. Green Pond Brook and Burnt Meadow Brook were also included in the study. Flooding can be expected in any season at Picatinny.

Picatinny lies within major storm tracks of the eastern United States and may experience periods of snowmelt with heavy rain in the spring. During the late summer and fall, Picatinny may experience flooding associated with tropical storms. Picatinny's flood control measures include preventing construction in low areas along existing streams.

3.2.7.2 Impacts

Evaluation criteria for impacts on floodplains are based on water availability and use, existence of floodplains, and associated regulations. The Proposed Action would be adverse if it:

- Reduces water availability or supply to existing users;
- Overdrafts groundwater basins;
- Exceeds safe annual yield of water supply sources;
- Threatens or damages unique hydrologic characteristics;
- Endangers public health by creating or worsening health hazard conditions; or
- Violates established laws or regulations adopted to protect floodplains.

3.2.7.2.1 Proposed Action

According to EO 11988, any new construction in the regulatory floodplain must apply accepted flood protection to reduce the risk of flood-associated damages; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. The Proposed Action involves remediation and demolition activities associated with existing buildings at Picatinny.

There is no new construction planned under the Proposed Action. Therefore, no adverse impacts to floodplains are expected as a result of the Proposed Action.

Upon completion of the project the square footage of the building footprint inside the regulation area will be calculated to bank credit for future land use disturbances inside a floodplain.

3.2.7.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on floodplains.

3.2.8 Biological Resources

3.2.8.1 Existing Conditions

Biological resources include native or naturalized plants and animals, and the habitats, such as forests, and grasslands, in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the USFWS or a state. Under the Endangered Species Act (ESA), an "endangered species" is defined as any species in danger of extinction throughout all or a large portion of its range.

A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. The USFWS also maintains a list of species considered to be candidates for possible listing under the ESA.

Further, DoD expects management of Species At Risk (SAR) which are typically state listed species, so they might not become Proposed or Candidate species.

3.2.8.1.1 Vegetation

Picatinny is approximately 70% forested, which is representative of the forest types classified within the New Jersey Highlands Region. Forested area accounts for 4,082 acres at Picatinny. The forest is a result of ecological succession of land previously farmed or cleared as well as more recent selective logging.

Therefore, most of the forested portion is in second-growth stages, having been logged historically. Forest types include mixed oak (65%), northern hardwood (13%), hemlock (8%), red and white pine (less than 1%), red maple (13%), aspen/gray birch (less than 1%), and hemlock wetland (less than 1%). As described in the Picatinny Integrated Natural Resource Management Plan (INRMP), Picatinny contains terrestrial and aquatic macrophytic species consisting of 626 species of flowering plants and 90 species non-flowering plants (Picatinny Arsenal, 2001). **Figure 3-8** depicts vegetation types at Picatinny.

Picatinny's current management practices are aimed at maintaining the forest with minimal loss of cover. Additionally, the terrain reduces the return from timber harvesting. No timber harvesting is practiced to reduce disturbance and minimize destruction of Indiana bat zones of concern, riparian corridors, and wildlife habitat.

3.2.8.1.2 Wildlife

Fauna present at Picatinny include a wide variety of terrestrial mammals, birds, reptiles, amphibians, fish, and insects, typical of those found throughout the northeastern United States. To date, 315 species of vertebrates have been documented on Picatinny.

These include 26 fish species, 21 amphibian species, 19 reptile species, 208 bird species (of which approximately 169 are migrants), and 41 mammal species (Picatinny, 2001). Picatinny's approximately 4,000 acres of forests, combined with adjacent public natural areas, provide more than 11,000 acres of contiguous wildlife habitat.

3.2.8.1.3 Threatened and Endangered Species

The diversity of habitats at Picatinny supports a large population of plant and animal species. The INRMP for Picatinny (Picatinny, 2001) lists and describes endangered and threatened plant and animal species that do occur or may occur. Although DoD facilities are only required to protect federally listed species, there are a number of state-listed species that occur at Picatinny and these SAR require proactive management as well. Picatinny has created management plans for the bog turtle and Indiana bat so that no adverse effects to the species or their habitat occur as a result of ongoing operations or future development (Picatinny, 2008a).

Plants. There are no known federally endangered or threatened plants at Picatinny, although two listed species, the small whorled pogonia (*Isotria medeoloides*) and swamp pink (*Helonias bullata*), are known to exist in the general area. Two federal species of concern, trailing tick trefoil (*Desmodium humifusum*) and butternut tree (*Juglans cinerea*) may occur at Picatinny but only the butternut tree has been documented.

There are seven state-listed endangered plants that occur, including four aquatic species found in Lake Denmark: featherfoil (*Hottonia inflata*), Robbins' pondweed (*Potamogeton robbinsii*), small bur-reed (*Sparganium natans*), and lesser bladderwort (*Utricularia minor*).

Slender wood reed grass (*Cinna latifolia*), meadow horsetail (*Equisetum pratense*), and large-leaf holly (*Ilex montana*) are associated with wetlands (Picatinny, 2001).

Fish and Wildlife. One federally listed endangered mammal (Indiana bat) and one federally listed threatened reptile (bog turtle) are known to occur at Picatinny.

The Indiana bat (*Myotis sodalis*) depends upon forested habitat during the spring and fall for foraging and roosting. Indiana bat zones of concern (capture/roosting areas) and hibernacula buffer zones (foraging) within and around the Picatinny habitat are depicted on **Figure 3-9**. The Endangered Species Management Plan (ESMP) for the Indiana bat (Picatinny, 2007a) outlines measures to protect the species' potential habitat: Tree trimming and cutting must be completed between November 15 and April 1 while the bats are in hibernation.

Dead trees provide potential roosting habitat for the Indiana bat and are allowed to remain as long as they do not pose a safety hazard. Any construction (or other tree clearing) project located within 0.75 mile of a previous Indiana bat sighting (zone of concern) must go through an informal consultation with the USFWS. The plan also requires conservation of riparian corridors on each side of all stream channels.

The bog turtle (*Clemmys muhlenbergii*) is a federally listed threatened reptile species that requires wetland habitats with open canopies; soft, muddy bottoms; and slow-moving water. The bog turtle was last seen at Picatinny in 1987 at the lower end of the eastern branch of the Green Pond shrub-swamp. This small area of potential habitat is located in a remote, undeveloped area of the installation. The ESMP for the bog turtle, which provides for passive management practices to protect the potential habitat, has been approved by the USFWS and New Jersey Division of Fish and Wildlife.

Ten New Jersey state-listed endangered species are known to occur at Picatinny. Only four of these actually reside or breed on the installation: bog turtle, timber rattlesnake (*Crotalus horridus*), red-shouldered hawk (*Buteo lineatus*), and bobcat (*Lynx rufus*). The remaining six bird species may use the installation habitats as transients.

Twelve state-listed threatened species (one turtle and 11 birds) are known to occur at Picatinny.

The Wood turtle (*Glyptemys insculpta*) has been seen infrequently since July 1999; although there have been two sightings within the past 3 years. Only three of the birds (Coopers hawk, barred owl, and northern goshawk) use the installation on a regular basis. The remaining eight bird species use a variety of installation habitats during seasonal migrations (Picatinny, 2001).

3.2.8.2 *Impacts*

This section evaluates the potential impacts on the biological resources under the Proposed Action and the No Action Alternative. The level of impact on biological resources is based on:

- Importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- Proportion of the resource that would be affected relative to its occurrence in the region;
- Sensitivity of the resource to the proposed activities, and
- Duration of ecological ramifications.

The impacts on biological resources are adverse if species or habitats of high concern are negatively affected over relatively large areas. Impacts are also considered adverse if disturbances cause reductions in population size or distribution of a species of high concern.

As a requirement under the ESA, federal agencies must provide documentation that ensures that agency actions do not adversely affect the existence of any threatened or endangered species. The ESA requires that all federal agencies avoid “taking” threatened or endangered species (which includes jeopardizing threatened or endangered species habitat).

Section 7 of the ESA establishes a consultation process with USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a federal agency project.

3.2.8.2.1 *Proposed Action*

Vegetation. The buildings proposed for remediation and/or demolition are located in areas designated as either improved or semi-improved grounds.

Improved grounds include existing turf in developed areas containing lawns, landscaped areas, and road shoulders along main thoroughfares, while semi-improved Grounds are surrounded by native woodlands or secondary succession vegetation seres. Land-disturbing activities associated with demolition could result in short-term, localized effects on vegetation in proximity to the construction sites, although the degree of disturbance would not be known until site assessments for each building have been completed.

The Picatinny ESMP (Picatinny, 2007a) authorizes the installation to remove up to 280 acres of trees during the period from 2008 to 2013. It is estimated that implementing the Proposed Action would result in permanent removal of a small area of forested land on the installation. Selective vegetation removal to include dry grass, brush, dead wood, heavy clippings, and invasive trees would take place in a 20- to 50-ft buffer from the building and in some cases a 25-ft access corridor would also be cut leading to the building.

Tree removal would be done in accordance with the installation's INRMP and Indiana Bat ESMP, (e.g., pruning and tree removal would be scheduled between November 16 and March 31) and would be less than 10% of the installation's authorized limit (280 acres), and would be accomplished within the constraints outlined in the ESMP and INRMP. Clear cutting of trees in regulated areas beyond 20 feet will require mitigation.

Implementing the Proposed Action would have a negligible to minor adverse effect on Picatinny's vegetation. The short-term impact intensity would depend on whether or not the removal is merely temporary with subsequent natural regrowth. Long-term effects cannot be determined until it is known whether the razed building footprints would be redeveloped and new buildings would be maintained with prescribed setbacks or if individual footprints would be reclaimed as forest. If the area of the razed buildings is reclaimed as forest there may be a beneficial effect from the net gain of permanent forest cover at these building sites. If the areas are to be redeveloped long term effects could include loss of habitat and increase in the area of impervious surface.

Wildlife. The diversity of habitats at Picatinny supports a large population of plant and animal species. Proposed remediation and demolition activities would not impact habitat available to the mammals, birds, or reptiles that occur at Picatinny. This assessment is based on the limited extent of areas that would be affected by the Proposed Action. Therefore, negligible adverse effects on wildlife would be expected to result from the Proposed Action.

Threatened and Endangered Species. Proposed remediation or demolition activities could occur near areas where federal or state threatened or endangered species have been documented or within their potential habitat. The species include the federally endangered Indiana bat, the state endangered bobcat and timber rattlesnake, and the state threatened wood turtle. Adherence to the Indiana bat ESMP would ensure that actions associated with the Proposed Action do not affect this endangered species on Picatinny, and there is no part of the Proposed Action that would impact the federally and state-listed bog turtle habitat that may exist on Picatinny.

Short-term noise created during remediation and demolition activities is not likely to affect federal or state threatened or endangered species due to the proximity of demolition activities to these species.

Therefore, there would be short-term and intermittent negligible to minor adverse effect on federal or state threatened or endangered species, species as a result of activities associated with the Proposed Action at Picatinny. The Proposed Action is not likely to jeopardize the continued and long-term existence of federal-designated endangered species on or in proximity to Picatinny.

No long-term adverse effects on state threatened and endangered species would be expected as a result of the Proposed Action at Picatinny.

Mitigation Measures. To reduce potential impacts to biological resources in the proposed remediation and demolition areas, Picatinny would consider ways to avoid such areas to the extent practical during project implementation. Measures and BMPs to be employed include the following.

The number and location of buildings requiring the removal of trees 5 inches in diameter and greater will be identified. Also, buildings that fall within 0.75 mile of the Indiana bat zone of concern will be identified. Site visits to these buildings will be arranged for local assessments by NRM (Natural Resources Manager), and any USFWS correspondence will be prepared and completed for the zone of concern. Tree pruning/removal will be scheduled between November 16 and March 31 to assure compliance with the Picatinny Indiana bat ESMP.

To comply with Migratory Bird Treaty Act requirements for migratory birds, all cutting, trimming, clearing, or removal of shrubs, vines, small saplings, or herbaceous vegetation will be scheduled between August 16th and April 14th if possible. If this window cannot be met, all targeted low and understory vegetation will be identified and indicated on a map.

A site visit will be scheduled by the NRM to determine if active nesting activities are occurring and to advise if/when clearing/cutting activities may proceed.

3.2.8.2.2 *No Action Alternative*

The No Action Alternative would have no adverse impact on biological resources.

3.2.9 *Cultural Resources*

3.2.9.1 *Existing Conditions*

As defined by 36 CFR 800.16, historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties.

The term includes properties that hold traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Several federal laws and regulations govern protection of cultural resources, including the National Historic Preservation Act (NHPA) (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (NAGPRA) (1990).

Picatinny contains a large number of historic buildings that are protected in accordance with federal legislation and U. S. Army regulations.

The NHPA, Section 106 mandates that Picatinny consult with the State Historic Preservation Office (SHPO) to identify and protect all historic properties, including archaeological sites, Native American and cultural resources, historic buildings and structures, historic districts, and their surrounding viewsheds.

If Native American resources, remains, sacred objects, and/or objects of cultural patrimony are found during the Section 106 process, the NAGPRA, among other federal Native American legislation, ARs, and EOs, requires that Picatinny consult with any interested federally recognized tribes and their respective Historic Preservation Officer or Liaison.

All of these historic preservation investigations must also meet the Secretary of Interior's standards and certain SHPO requirements.

Picatinny manages historic properties through its Integrated Cultural Resources Management Plan (ICRMP) (Picatinny, 2008b). This plan identifies all previous and current cultural resource management activities and needs that have occurred and continue at the installation; along with addressing and documenting all federal historic preservation legislation and U. S. Army regulation pertinent to protecting these historic properties. Guidance and SOPs within the ICRMP allow Picatinny to efficiently manage all known and unknown historic properties within the military mission.

Due to Picatinny's unique historic heritage, there have been several building assessments prepared for the arsenal since 1982. Currently, historic buildings assessments have been conducted for approximately 75% of the installation's buildings.

Based on current assessments, Picatinny has been determined to lack sufficient integrity to form a single historic district; instead, five smaller areas, containing 125 structures, have since been recommended to be NRHP-eligible as historic districts since 1999.

1. Administration and Research Historic District;
2. 600 Ordnance Testing Area Historic District;
3. Test Area E, Naval Air Rocket Test Station Historic District;
4. Test Area D, NARTS Historic District; and
5. Rocket Test (1500) Area.

Additionally, there are two individual historic buildings and one historic feature eligible for the NRHP.

- Building 3250 – Constructed in 1890, serving as the Naval Commander's home from the time the land was transferred to the U. S. Navy in 1891 until control was relinquished back to the U. S. Army in 1960.
- Building 3316 – Constructed in 1903 as a stable but later converted to a fire house.

- Cannon Gates – Manufactured by melting down cannons and cannonballs at the Cornell, New York, ironworks in 1885. The gate is located at the intersection of Buffington Road and Parker Road.

In total, more than 200 potential and/or known historic archaeological sites, along with 29 potential and/or known prehistoric archaeological sites have been identified across the installation. As a result of completed field surveys and assessments, 152 areas of varying size and approximately 2,050 acres across the installation have been identified as sensitive and/or potentially sensitive, yet disturbed, for the occurrence of archaeological materials.

In total, 49 archaeological sites of a prehistoric and historic nature have been officially identified with Smithsonian Site Registration Trinomial numbers and recorded with the New Jersey State Museum.

3.2.9.2 Impacts

The EA process and the consultation process prescribed in Section 106 of the NHPA requires an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's Area of Potential Effect (APE), which is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." In accordance with Section 106 of the NHPA, determinations regarding the potential effects of an undertaking on historic properties are presented to the SHPO. Picatinny initiated consultation through the Section 106 process with the New Jersey SHPO.

As a result, a programmatic agreement (PA) as contained in **Appendix D** was developed between Picatinny, the SHPO, the Advisory Council on Historic Preservation (ACHP), and local interested stakeholders (e.g., regional and local historical societies and commissions) in conjunction with the undertakings of the Picatinny RPMP (Picatinny, 2008a).

3.2.9.2.1 Proposed Action

The RPMP APE extends to all of Picatinny and includes the demolition of surplus buildings as part of the FRP. It was stipulated that 30 historic properties listed for demolition in the FRP are severely contaminated and, once historic narrative documentation is completed, Picatinny can proceed with demolition of these properties, along with those properties determined non-contributing to larger historic districts and not eligible for listing in the NRHP.

This method of mitigation was negotiated with the SHPO, ACHP, and locally interested stakeholders through the consultation of completing the PA (signed and amended March 10, 2011). Stipulations in the PA also identified any mitigation measures to be implemented as well as preservation design guidelines for the defined character areas in Picatinny (Picatinny, 2011a).

Mitigation measures identified in the PA include: installation of identification signage, development of a temporary museum exhibit of display text boards, submission of a Cultural Landscape Analysis, development of a website providing background on cold war era rocket production and reevaluation of National Register of Historic Places within historic districts at the conclusion of the FRP. Additional detail on the mitigation measures can be found in the PA located in **Appendix D**.

Therefore, any historic properties included under the Proposed Action are covered under the PA, and implementing the Proposed Action would have little to no effect on the remaining historic properties at Picatinny Arsenal or in the surrounding area. It is expected that significant cultural resources would not be affected during proposed decontamination and demolition activities, as the building areas are previously disturbed. Additionally, if any buried cultural resources are identified during ground disturbance activities, SOPs as contained in the ICRMP would be followed to cease construction until further evaluation by the Cultural Resource Manager, and consultation with SHPO and federally recognized tribes is complete, if needed.

3.2.9.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on cultural resources.

3.2.10 Traffic and Transportation

3.2.10.1 Existing Conditions

SR 15 is the primary access to Picatinny, both from I-80 and points north. SR 15 is a four-lane major arterial road with access restricted to grade-separated interchanges and signalized intersections at major cross-streets. The two major access points to the regional road network are the Picatinny main gate on Parker Road and the installation's commercial truck gate on Phipps Road, both of which lead directly to SR 15.

Route 46, which is located approximately 3 miles southeast of the main entrance, is the third access point to the installation.

Picatinny's roads serve administrative, commercial, living, and industrial areas and provide connections to the local off-the-installation transportation network. Picatinny has approximately 84 miles of roads. Roads are classified as either primary or secondary according to their relative importance and function as part of the roadway network (**Figure 3-10**).

Primary roads include all roads and streets that serve as main distribution arteries for traffic originating outside and within the installation and that provide access to, through and between functional areas. Secondary roads supplement primary roads by providing access to, between, and within functional areas. There are no reported systemic safety or congestion issues with the road network on the installation.

3.2.10.2 Impacts

The Proposed Action would result in a traffic and transportation impact if (1) it contributed to an increase in vehicle traffic that could not be accommodated by the roadway network; or (2) circulation problems occurred.

3.2.10.2.1 Proposed Action

Temporary remediation and demolition activities associated with implementation of the Proposed Action are anticipated to produce short-term minor adverse impacts on traffic generation, traffic volume, and street use on the installation. It is estimated that the total personnel working on-site on proposed activities would be approximately 15 workers at any one time. Although these contractors would complete predominantly short-term projects, the overall project is comprised of sequential phases that would overlap and are expected to continue through 2013.

The Proposed Action would affect traffic generation and street system usage on the installation over the short term. During proposed burn-in-place activities at Buildings 210, 408, 1362, 1363, and 1373 (**Section 2.2.3.3**), on- and off-site barricades would be established and pre-determined road closures would be enforced until all barricades have been removed. These activities would occur during daylight hours (before 1400 hours) on weekends to minimize any potential effects to the Picatinny workforce and surrounding community.

Increases in traffic volumes and adverse impacts to traffic flow on-site are likely due to additional traffic entering, leaving, and cycling throughout the installation as a result of contractors performing construction-related activities. In particular, there would be an overall increase in the volume of truck and heavy equipment traffic as a result of removal of debris during demolition. Truck traffic for equipment would be episodic and dispersed over time.

Negligible long-term adverse impacts are anticipated under the Proposed Action.

Mitigation Measures. The following is a summary of proposed mitigation measures under the Proposed Action:

- Prepare construction schedules for distribution to Picatinny employees prior to proposed activities; and
- Provide specific construction routes to contractors to minimize conflicts with routine vehicular traffic.

3.2.10.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on traffic and transportation.

3.2.11 Health and Safety

3.2.11.1 Existing Conditions

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The public has little access to the construction activities associated with the Proposed Action.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environs. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation processes creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.2.11.1.1 Munitions and Explosive Safety#

Explosive safety zones (ESZs) are required for areas where ordnance is stored or handled. ESZs are typically determined based upon the net explosive weight of the ordnance to be stored or handled and the blast resistance properties of the magazine. ESQD arcs that delineate the extents of each ESZ are constructed.

The proposed project includes the remediation of buildings, installed components, and equipment which may be MPPEH. Remedial techniques would include physical disturbance of these items through a variety of remedial techniques such as dismantling, washing, flashing, and thermal treatment. ESQD arcs would be established where necessary for all inspection and remediation activities. These ESQD arcs would be specified in the ESP or the ESS.

3.2.11.1.2 Construction and Demolition Safety

Construction site safety is largely adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of on-site military and civilian workers are safeguarded by DoD and U. S. Army regulations designed to comply with standards issued by OSHA and EPA.

These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

All contractors performing construction activities are responsible for following ground safety regulations and worker compensation programs, and are required to conduct construction activities in a manner that minimizes risk to workers or personnel.

Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable.

Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous materials), physical (e.g., noise propagation), and biological (e.g., tick bites); to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

3.2.11.1.3 Fire Hazards and Public Safety

The Picatinny Arsenal Fire and Emergency Services provide fire, crash, rescue, and structural fire protection at Picatinny. Picatinny abides by a general safety policy relating to the performance of all activities. Individuals, supervisors, managers, and commanders are expected to give full support to safety efforts and safety awareness and strict compliance with established safety standards are expected.

3.2.11.2 Impacts

Impacts on health and safety are evaluated for their potential to jeopardize the health and safety of installation personnel as well as the surrounding public.

Impacts might arise from physical changes in the work environment, construction activities, introduction of construction-related risks, and risks created by either direct or indirect workforce and population changes related to proposed activities at Picatinny.

3.2.11.2.1 Proposed Action

Munitions and Explosive Safety. Short-term minor effects would be expected from the proposed remedial action activities. Implementation of the various remedial techniques would slightly increase the short-term risk associated with remediation contractors performing work. Contractors would be required to establish and maintain safety programs and comply with all federal guidance for explosives safety. Contractors would be required to write and obtain approval for an ESS that would detail safe activities, procedures, and safety distances between work crews and the public.

Construction Safety. Short-term minor adverse effects would be expected from proposed construction activities. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Picatinny during the normal work day because of the increase in construction activities.

Contractors would be required to establish and maintain safety programs, and adhere to SOPs. Proposed activities would not pose a safety risk to Picatinny personnel or to activities at the installation.

In addition, “digging clearances” would be obtained from Base Civil Engineering and Base Utilities prior to excavating soils and installing utility lines. Proposed projects would enable Picatinny to meet future mission objectives, and conduct or meet mission requirements in a safe operating environment.

Fire Hazards and Public Safety. A short-term increase in fire hazards would result from explosives remediation efforts. Remedial techniques such as flashing and thermal treatment of contaminated buildings would be performed under tightly controlled conditions. Contractors would be required to establish and maintain safety programs and comply with all federal guidance for explosives safety. Contractors would be required to write and obtain approval for an ESS which would detail safe activities, procedures and safety distances between work crews and the public. Planning for thermal treatment of buildings would include cutting fire breaks, closely monitoring weather conditions on burn days, and close coordination with the Picatinny Fire Department.

Therefore, negligible adverse effects are anticipated as a result of the Proposed Action due to safeguards existing to protect personnel.

Mitigation Measures. Any potential adverse impacts to the health and safety of nearby personnel will be minimized by clearly identifying the construction zone and prohibiting access to unauthorized individuals. Use of cranes and other high-profile equipment will require a “spotter” when operating near any overhead hazards.

To minimize vehicle accidents, construction personnel will direct heavy vehicles entering and exiting the site. Picatinny has also incorporated stringent safety standards and procedures into day-to-day operations.

3.2.11.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on safety at Picatinny.

3.2.12 Hazardous Materials and Hazardous Wastes

3.2.12.1 Existing Conditions

AR 200-1 Environmental Protection and Enhancement establishes hazardous materials and waste policies that the U. S. Army is committed to and include:

- Cleaning up environmental damage resulting from its past activities;
- Meeting all environmental standards applicable to its present operations;
- Planning its future activities to minimize environmental impacts;
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust; and
- Eliminating pollution from its activities wherever possible.

Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste; or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.

Buildings proposed for remediation and/or demolition have had a varied usage history; however, most buildings were directly or indirectly involved with the production of explosives, including explosives testing laboratories. Therefore, evaluation of hazardous materials and wastes focuses on these topics. Evaluation of laboratories, explosives process equipment, and explosively contaminated wastewater conveyances are of primary importance.

Additionally, more traditional hazardous material and waste areas will be evaluated, such as underground storage tanks and above-ground storage tanks and the storage, transport, and use of pesticides and herbicides; fuels; and petroleum, oils, and lubricants. Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources.

In the event of release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources.

In general, both hazardous materials and wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Special hazards are those substances that might pose a risk to human health, but are not regulated as contaminants under the hazardous waste statutes. Included in this category are ACM, radon, lead-based paint (LBP), PCBs, and UXO. PCBs have previously been identified in paint used on Picatinny's buildings. PCBs were added to paint to increase pliability, chemical resistance, and heat resistance. The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

3.2.12.1.1 Hazardous Materials

CERCLA, as amended by SARA and the TSCA, defines hazardous materials. U. S. Army hazardous materials/hazardous waste policy is articulated in the following ARs (Army, 2007):

- AR 200-1, Environmental Protection & Enhancement, describes the U. S. Army's environmental programs and assigns responsibilities for managing the environmental program.

It also describes U. S. Army policies, standards, and procedures for pest-control activities and incorporates DoD measures of merit for pest management as in DoD Instruction 4150.7, Pest Management Program.

- Chapter 22 of AR 420-1 describes the Army Energy and Water Management Program.

Picatinny has developed an Installation Contingency Plan (ICP) (Picatinny, 2007b), which is reviewed every 5 years. This plan provides instructions and protocol for response to hazardous materials spills or releases, and designates emergency contacts, response procedures, reporting requirements, personnel training, and equipment needs in the event of an emergency incident. The ICP also identifies outside emergency resources, such as local community fire, police, and medical centers, and notification procedures to be used in the event of spill emergencies (Picatinny, 2007b).

3.2.12.1.2 Hazardous Waste

The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes.

RCRA requires generators of hazardous waste to obtain a permit if they generate 1,000 kilograms (2,200 pounds) of hazardous waste. Picatinny currently operates under Permit number 1409E1HP07 for Hazardous Waste Storage. The research and testing operations at Picatinny generate a large variety of hazardous wastes.

Picatinny has approximately 90 points of waste generation located throughout various operations.

Picatinny has a hazardous waste storage permit. In addition, Picatinny has an interim permit, issued by NJDEP that authorizes open burning and open detonation of waste/excess explosives and propellants. Hazardous waste generation has dramatically declined in recent years, and Picatinny continues to meet U. S. Army goals of waste minimization. Hazardous waste generated on Picatinny is properly stored, managed, and manifested to meet appropriate regulations promulgated under RCRA.

TSCA regulations (40 CFR Part 761, et al) would be adhered to when dealing with PCB Bulk Product Waste, and/or PCB contamination. All solid waste containing PCBs greater than 50 ppm would be disposed of in accordance with TSCA regulations.

Hazardous wastes are managed by personnel at the Environmental Division and Stock Management Office. The Safety Office implements the OSHA training for all Picatinny personnel and assures that training is current for all workers. The Environmental Division is responsible for the management of the handling, transport, storage, and disposal of all hazardous wastes generated at Picatinny.

All hazardous waste handling and storage must conform to BMP for Spill Prevention Control and include the spill response and notification procedures.

The wastes are manifested and transported off base and disposed of at federally permitted disposal facilities. The total amount of hazardous wastes manifested by Picatinny is more than 100 tons per year.

The volume of hazardous waste generated at Picatinny is reported biannually to the NJDEP, per state regulations.

3.2.12.1.3 *Stored Fuels*

Picatinny has developed an Installation Spill Contingency (ISC) Plan that was updated in April 2009, and is reviewed on an annual basis. This plan provides instructions and protocol for response to hazardous materials spills or releases, and designates emergency contacts, response procedures, reporting requirements, personnel training, and equipment needs in the event of an emergency incident. The ISC Plan also identifies outside emergency resources, such as local community fire, police, and medical centers, and notification procedures to be used in the event of spill emergencies.

3.2.12.1.4 *Asbestos-containing Materials*

A *Pre-Demolition Asbestos Survey Report*, (USACE, 2009) identifies ACMs in 17 of the 82 buildings that are proposed for remediation. The 17 buildings include: 210E, 408, 525A, 1031, 1361, 1362, 1363, 1364, 1372, 1373, 1377, 1380, 1519, 1520, 3603, 3612, and 3617. The *Survey Report* contains a description of the ACM findings for each of the buildings surveyed.

The ACM identified in the 17 buildings include materials such as: roofing, various mastics and adhesives, thermal system insulation of various forms, floor coverings (including linings beneath lead and non-conductive flooring materials), window putty, and various applications of asbestos-cement pipe and sheeting materials. **Table 3-9** presents ACM identified in each building proposed for remediation and/or demolition, however the contents of the table should only be considered as a guide to assist with the thorough ACM survey as proposed.

ACM-abatement contractors are responsible for obtaining all required permits from the Picatinny Installation Safety Office and for providing regulatory agencies with all required notifications. The following regulations will be adhered to while performing ACM survey or abatement activities:

OSHA Regulations:

29 CFR 1926.1101, Construction Standard for Asbestos
29 CFR 1910.100 1, General Industry Standard for Asbestos
29 CFR 1910.134, Respiratory Protection Standard
29 CFR 1910.1200, Hazard Communication Standard

EPA Regulations:

40 CFR 763 Subpart G, EPA Worker Protection Rule

40 CFR 61 Subpart M, EPA National Emission Standard for Hazardous Air Pollutants (NESHAP)

40 CFR 763 Subpart E, EPA Asbestos Hazard Emergency Response Act (AHERA)

New Jersey Regulations:

NJSA34:5A38 Licenses and permits; issuance; fees; duration

NJSA34:5A39 Standards and Regulations

NJSA34:5A40 Enforcement of asbestos act; order of abatement; injunction or restraining order; assessment of costs and civil administrative penalty

NJSA34:5A41 Violations; penalties

NJSA34:5A43 Certification standards; exemptions; annual fees

Army Regulations:

AR 200-1 Chapter 10, Environmental Protection and Enhancement

**Table 3-10
Asbestos-containing Materials Identified in Buildings Proposed for
Remediation/Demolition**

Building	CAB Roofing/ Siding	Other Roofing (Mastic, Shingles, Vapor Barriers)	Exterior Walls	Window Putty	Pipe Insulation/Hard Fittings	Insulation (HVAC/ Tank)	Insulation (Oven/Oven Cord)	Flooring (Vinyl Mastic, Vapor Barrier)	Interior CAB Panels	Ceiling/Interior Walls	Light Gasket
210E	X	X		X							
408					1		1				
525A	2	2		2				2	2		
1031	2	3			1	1		2			
1361	2	2									
1362		3			1	1					
1363	2	2	2		1						
1364						1					
1372		2		2							
1373		3		2	1						
1377		2								2	
1380	2	3								2	
1519	2								2	2	
1520	2										
3603					1	1		2			
3612		3			1			2			
3617		3			1	1		2		1	

Source: Asbestos Containing Material Abatement Plan, Draft SSRWP, May 2011

Explanation Notes (numbers contained in Table correspond with numbers below):

- (1) Confirmed Friable ACM
- (2) Confirmed Non-Friable Regulated ACM (RACM) per NESHAP
- (3) Confirmed Non-Friable (non-RACM) per NESHAP
- X Assumed/Suspect ACM Identified

As part of remediation/demolition activities to be performed under the Proposed Action, a thorough ACM survey will be performed.

The survey will identify ACM and ORM, assess potential ACM and ORM hazards and removal/abatement requirements, prevent further release of asbestos fibers or ORM, and quantify the identified ACM and ORM. The purpose of the survey is to collect data to assess controls necessary to minimize exposure to workers and the environment from asbestos fibers and other hazardous materials during planned building demolition.

An ACM Abatement Plan and Hazardous Materials Removal Plan have been drafted that formulate an approach to training, cleaning, work practices, and monitoring during removal of ACM and ORM prior to building demolition (USACE/ITSI, 2011).

Non-friable ACM and friable asbestos must be disposed of in accordance with state and federal regulations. ACM-abatement contractors are responsible for obtaining all required permits from regulatory agencies and for NJDEP and AHERA notification requirements.

3.2.12.1.5 Lead-based Paint

The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on federal facilities. Federal agencies are required to comply with applicable federal, state, and local laws relating to LBP activities and hazards.

Army policy requirements for LBP management are found in 15 USC 2601; Section 1025, Part 1910, Title 29, Code of Federal Regulations (29 CFR 1910.1025); Section 62, Part 1926, Title 29, Code of Federal Regulations (29 CFR 1926.62); Part 745, Title 40, Code of Federal Regulations (40 CFR 745); USEPA regulations at Part 761, Title 40 Code of Federal Regulations (40 CFR 761, et seq); AR 420–70, chapter 3; and applicable state and local requirements. Additionally, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards.

More than 95% of Picatinny facilities were constructed prior to 1980 and contain LBP. Lead concentrations are generally low with the exception of paints used on outdoor structures such as water towers. The U.S. Department of Housing and Urban Development action level is 5,000 ppm. However, even when concentrations are below this, OSHA Lead Construction Standard (29 CFR 1926.62) must be followed. All workers performing lead abatement or removal or any other lead disturbance are required to have a lead workers license issued by the state of New Jersey. Licensing is not required if the contract involves mechanical demolition. Contractors containerize LBP wastes that are disposed of under contract.

Lead has historically been identified in conductive floorings and in painted surfaces (including paint chips on the floor of some buildings).

Paint chips and other materials suspected to contain lead would be sampled as part of waste management activities in accordance with the approved Picatinny Waste Management and Diversion Plan (USACE/ITSI, 2011).

Only limited existing ORM data are currently available for the selected structures, including some identified PCBs in some light fixture ballasts in some buildings.

The ORM survey may include identification and assessment of currently hidden materials. The ORM survey will be conducted in a manner that anticipates possible hidden ORM and determines whether intrusive investigation or sampling is required (USACE/ITSI, 2011).

3.2.12.1.6 Installation Restoration Program

The IRP is a subcomponent of the DERP that became law under SARA. It requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

The IRP provides a methodology to evaluate past disposal sites, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to clean up contamination. IRP activity descriptions provide a gauge of soil conditions, water resources, and other resources that might be affected by contaminants. It also aids in property identification and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

Picatinny has been designated an NPL site by the EPA per CERCLA. To date, 175 Defense Site Environmental Restoration Tracking System sites have been identified at the installation (**Figure 3-11**). The most widespread contaminants of concern at Picatinny include VOCs, semivolatile organics, metals, TCE, PCBs, benzo(a)pyrene, nitroaromatics, explosives, UXO, propellants, radiological material, and pesticides. Media of concern at Picatinny include groundwater, soil, and sediment (Picatinny, 2011b). **Table 3-10** presents a summary of recent Picatinny DERP reviews with results indicating the 5-year review has been completed and EPA agreed with the results, which requires the U.S. Army to complete actions set forth in the proposed plan and feasibility study stage (U.S. Army, 2011).

Table 3-11
DERP Sites Periodic Review Summary, 2011

Associated ROD/DD Name	Sites
ROD for Lower Burning Ground	PICA-002
Group of 13 Sites. LUC for Soils at Sites 19, 28, 44, etc.	PICA-020, PICA-036, PICA-070, PICA-083, PICA-088, PICA-092, PICA-095, PICA-099, PICA-100, PICA-105, PICA-110, PICA-112, PICA-118
Site 23, Post Farm Landfill	PICA-065

Associated ROD/DD Name	Sites
ROD Green Pond/Bear Swamp Brooks	PICA-193
ROD for Sites 20/24, Pyrotechnic Testing Range/Sanitary Landfill	PICA-066
ROD for Area D, Groundwater	PICA-076
Sites 25/25, Sanitary Landfill/ Dredge Pile	PICA-067
Area E, Groundwater	PICA-077
Site 180, Waste Burial Area	PICA-093
Sites 61/104, Waste Dumps and Chemical Laboratories	PICA-102
Area B, Groundwater	PICA-205
Sites 31/101, Former DRMO Yard	PICA-072
Area C, Groundwater	PICA-206
Group 3 Sites	PICA-008
Group 1 sites	PICA-079

Source: U.S. Army Installation Management Command Headquarters, U.S. Army Garrison, Picatinny Arsenal. Fourth Five-Year Review Report. July 2011; PICA: Picatinny Arsenal Site; ROD=Record of Decision; LUC=Land Use Controls

Seventy-three buildings under the Proposed Action are in close proximity to identified IRP sites (Figure 3-11). Table 3-11 presents the building identification and IRP site.

Table 3-12
Buildings in Close Proximity to IRP Sites

Building Number	IRP Site	Building Number	IRP Site	Building Number	IRP Site
48	PICA-119	1361	PICA-35	3615	PICA-4
50	PICA-120	1363	PICA-35	3616	PICA-4
164	PICA-124	1364	PICA-35	3617	PICA-4
166	PICA-124	1372	PICA-200	3618	PICA-4
166	PICA-209	1373	PICA-167	3625	PICA-4
166	PICA-126	1380	PICA-51	3626	PICA-4
167	PICA-209	1400	PICA-168	3627	PICA-4
167	PICA-126	1402	PICA-168	3628	PICA-4
197	PICA-126	1410	PICA-169	1354A	PICA-166
210	PICA-62	1511	PICA-3	1357A	PICA-166
408	PICA-138	1517	PICA-3	1359A	PICA-166
620	PICA-155	1518	PICA-3	1462A	PICA-170
634	PICA-15	1519	PICA-3	1510A	PICA-3
636B	PICA-14	1520	PICA-3	1517A	PICA-3
646	PICA-13	1521	PICA-3	1518A	PICA-3
652	PICA-11	1522	PICA-3	429A	PICA-141
671	PICA-9	3052	PICA-102	454B	PICA-111
1031	PICA-160	3603	PICA-4	611C	PICA-15
1031	PICA-161	3604	PICA-4	611D	PICA-15
1094	PICA-41	3605	PICA-4	620C	PICA-155
1180	PICA-19	3606	PICA-	641G	PICA-13
1186	PICA-19	3608	PICA-4	717C	PICA-108
1241	PICA-7	3609	PICA-4	810A	PICA-40
1354	PICA-166	3611	PICA-4	816A	PICA-156

1357	PICA-166
1359	PICA-166

3612	PICA-4
3613	PICA-4

816B	PICA-156

Note: PICA= Picatinny Arsenal

Many of the buildings to be remediated and/or demolished under the Proposed Action are in close proximity to the IRP sites, thus there has been extensive characterization of environmental media. These existing environmental data would be factored into the remedial approach for each building. The ‘hot spots’ or areas of concern of the existing documented contamination per site as based on the Remedial Investigation or per the Record of Decision will be tracked and properly documented to the extent that the demolition process including grading and soil filling will affect the definition of that ‘hot spot.’

The level of this tracking and documentation will be consistent with the continuing EPA/NJDEP/Army agreed-to definition of site, levels of concern or cleanup criteria, and the definition of hot spot or area of concern in regard to the IRP at Picatinny.

The Picatinny Soil Management Policy requires sampling of excess soils generated from construction projects because of general concern regarding the unknown nature of much of Picatinny’s history.

The Picatinny Soil Management Policy ensures that Picatinny remains compliant with the New Jersey Technical Requirements for Site Remediation regarding the proper reuse of the excavated excess soil on Picatinny or the appropriate off-site disposal of the soil (USACE/ITSI, 2011).

3.2.12.2 Impacts

Impacts to hazardous material management would be considered adverse if the federal action resulted in noncompliance with applicable federal and state regulations, or increased the amounts generated or procured beyond current Picatinny waste management procedures and capacities.

Impacts on the IRP would be considered adverse if the federal action disturbed (or created) contaminated sites resulting in negative effects on human health or the environment. Impacts on fuels management would be adverse if the established management policies, procedures, and handling capacities could not accommodate the activities associated with the Proposed Action.

3.2.12.2.1 Proposed Action

Hazardous Materials. Products containing hazardous materials would be procured and used during the proposed remediation and demolition activities. It is anticipated that the quantity of products containing hazardous materials used would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with federal and state regulations. Therefore, hazardous materials management at Picatinny would not be impacted by the proposed activities.

Hazardous Wastes. It is anticipated that the quantity of hazardous wastes generated from proposed remediation and demolition activities would be substantial. Contractors would be legally responsible for the disposal of hazardous wastes in accordance with federal and state laws and regulations. Construction of the proposed facilities would not impact the installation's hazardous waste management program.

It is anticipated that the volume, type, classifications, and sources of hazardous wastes associated with the Proposed Action would be similar in nature with the baseline condition waste streams. Hazardous waste would be handled, stored, transported, disposed of, or recycled in accordance with the Project Waste Management Plan. Therefore, it is anticipated that the Proposed Action would result in moderate adverse impacts to hazardous wastes at Picatinny.

Picatinny has an established and mature hazardous materials and hazardous waste management program.

Implementing the Proposed Action would not affect the management of hazardous material or hazardous waste. All hazardous waste handling and storage would conform to the most current Hazardous Waste Management Plan and BMPs for Spill Prevention and Control and include the spill response and notification procedures. The volume of hazardous waste generated at Picatinny is reported biennially to the NJDEP, per state regulations (Picatinny, 2008a).

Asbestos-containing Material, Paint Containing PCBs, and Lead-based Paint. Under the Proposed Action, no new construction will be conducted. Buildings to be remediated/demolished as part of the Proposed Action at Picatinny may have been painted with paints containing PCBs, ACM, and/or lead. An environmental survey would need to be accomplished to identify any ACM that may be disturbed during remediation/demolition. Demolition activities would be handled in accordance with the Asbestos Management Plan, LBP Management Plan, TSCA regulations, and AR policies.

Adverse impacts would be short-term and minor, and would be minimized under the worker protection program. This program is fully addressed in the Accident Prevention Plan that has been developed for Picatinny and includes personnel exposure monitoring, medical surveillance, and personal protection as required by applicable regulation for the ACM and ORM survey.

Installation Restoration Program. Fifty-eight buildings scheduled for remediation/demolition under the Proposed Action are located within Picatinny IRP sites (**Table 3-11**). Environmental data and completed environmental remedies would be evaluated and factored into the remedial approach.

Short-term minor adverse impacts due to soil disturbances could occur during proposed remediation/demolition activities under the Proposed Action. However, because only near surface soils would be expected to be affected during utility removal and slab demolition, no long-term impacts would be anticipated.

3.2.12.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on hazardous materials storage and waste generation.

3.2.13 Solid Waste

3.2.13.1 Existing Conditions

Solid waste management primarily concerns itself with the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance on landfills for disposal.

Picatinny does not operate a municipal solid waste landfill. Instead, the solid waste is collected and transported to the Mt. Olive Transfer Station operated by Morris County Municipal Utilities Authority. The waste is then taken to Tullytown Landfill, which is operated by Waste Management Inc., for ultimate disposal. Tullytown Landfill receives approximately 13,000 tons of solid waste per day and has a life expectancy of 5 years. All solid waste containing PCBs greater than 50 ppm would be disposed of in accordance with TSCA regulations.

Picatinny has been recycling at a rate of 45%, or better, during the past several years. Picatinny complies with the Morris County Solid Waste Management Plan and with New Jersey requirements to recycle certain items from the municipal solid waste stream.

3.2.13.2 Impacts

3.2.13.2.1 Proposed Action

When considering the basis for evaluating impacts on solid waste, several items are considered. These items include evaluating the degree to which the proposed projects would affect the existing solid waste management program and capacity of the area landfill.

Solid waste generated from the proposed remediation and demolition activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Contractors are required to recycle construction and demolition waste to the greatest extent possible as part of installation policy, and any recycled construction and demolition waste would be diverted from landfills. Short-term effects in solid waste generation are anticipated and would be minor to moderate.

Long-term changes in solid waste generation would be minor. Therefore, the Proposed Action would have a minor adverse impact on the solid waste management program at Picatinny.

3.2.13.2.2 No Action Alternative

The No Action Alternative would have no adverse impact on solid waste generation.

3.3 Cumulative Impacts

The CEQ regulations (40 CFR 1508.7) require assessment of cumulative impacts in the decision-making process for federal projects.

Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the foreseeable future.

Reasonably foreseeable future actions are mainly limited to those that have been approved and that can be identified and defined with respect to time frame and location. Reasonably foreseeable future actions that have been identified and considered in the analysis of cumulative impacts for Picatinny are listed below.

Reasonably foreseeable on-post actions include the following.

- Continuation of current operations by the garrison and installation's tenants. It is anticipated that current military missions at Picatinny are expected to remain relatively constant into the foreseeable future.

Maintenance, repair, and operation of existing operational support facilities would continue as currently conducted, and these operations would expand to address those facilities built within the scope of the Picatinny RPMP.
- Projects identified under the Long Range Component (LRC), and future Enhanced Use Lease (EUL) projects are reasonably foreseeable.
- The real property, land use, and land development requirements scheduled for Picatinny's long-range program due to funding constraints or lower priority as established by the Garrison and Mission leadership can be found in the LRC of the RPMP.
- Redevelopment of many of the installation's family housing units as part of the Army's Residential Communities Initiative would result in renovation, redevelopment, and construction activities within and near the installation's housing area. These actions have been reviewed by a separate environmental review.
- Picatinny is participating in an EUL initiative that would result in the leasing and development of an approximately 120-acre site (Picatinny's Applied Research Campus) adjacent to Parker Road near the main gate.
- Picatinny is anticipated to receive an increase in mission activities because of Base Realignment and Closure 2005 realignment actions.

A separate standalone environmental review of this potential action is being prepared and is addressed here as well.

- It is anticipated that Morris County's population will continue to grow; in the 10-year period ending 2010, population grew by 22,064 to 492,276 (U.S. Bureau of Census, 2011).

Collectively, these reasonable foreseeable actions, should they be implemented as anticipated, are not expected to result in adverse cumulative impacts associated with the Proposed Action. Potential cumulative effects for the resources analyzed in this PEA are briefly described below.

Land Use. The major foreseeable construction at Picatinny within a 10-year (or more) horizon is the proposed development conceptualized in the RPMP. These projects, along with the others scattered throughout Picatinny, represent a unified vision of the land use goals. The proposed project contributes in a small, yet beneficial way to Picatinny's redevelopment momentum by removing unused hazardous structures that potentially precluded using some Picatinny land for redevelopment. Therefore, no cumulative impacts on land use are anticipated.

Air Quality. Remediation and demolition activities associated with the proposed project would result in minimal adverse cumulative impacts related to air quality over the short term.

Increased traffic capacity would be minor and would have a negligible contribution to air quality in the area; therefore, no long-term cumulative impacts are anticipated.

Water Resources. Cumulative impacts from recent and planned projects to water resources are not expected because stormwater runoff increases are not anticipated. Cumulative impacts to groundwater are also not anticipated as the proposed project and other associated planned activities would not involve storage or appreciable use of materials that could degrade groundwater quality. Beneficial effects are possible through the remediation of sumps, piping, or wastewater troughs which are potentially contaminated with explosives or metals. Additionally, the remediation of ORM in buildings may prevent future environmental releases when the structural integrity of these buildings degrades to where environmental release could be possible.

Traffic and Transportation. The Proposed Action would contribute to cumulative effects on the transportation system around the Arsenal. However, there would be no cumulative impacts as a result of the proposed remediation and demolition activities on the larger transportation network.

Hazardous Materials and Hazardous Waste. The proposed project would produce a moderate amount of hazardous wastes, but because there are programs in place to manage the potential hazardous materials and wastes that are currently on the project site, there would be no cumulative impacts with respect to hazardous substances.

3.4 *Unavoidable Adverse Effects*

Unavoidable adverse impacts would result from implementing the Proposed Action.

Noise. The noise resulting from remediation and demolition activities and construction equipment is an unavoidable condition. Although construction noise would occur under the Proposed Action, the noise would be temporary and would cease upon completion of the construction and renovation project.

Implementation of BMPs during construction would limit potential impacts resulting from construction activities.

Safety. The potential for worker safety mishaps is an unavoidable condition associated with the Proposed Action. However, the potential for this unavoidable situation would not increase over baseline conditions.

Energy. The use of nonrenewable resources is an unavoidable occurrence, although this use is negligible compared with total use of energy. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource.

Energy supplies, although relatively small, would be committed to the Proposed Action.

Geology and Soils. Under each Proposed Action, remediation and demolition activities such as grading, excavating, and re-contouring of the soil would result in soil disturbance. Implementation of BMPs during construction would limit potential impacts resulting from construction activities.

Standard erosion control means would also reduce potential impacts related to these characteristics.

Biological Resources. Site grading associated with remediation and demolition would remove minimal vegetation and associated small animal life now occupying and using the affected areas. The affected sites are already heavily disturbed and do not currently provide suitable habitat for many species.

3.5 *Relationship of Short-term Uses and Long-term Productivity*

Short-term uses of the biophysical components of the human environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occur over a period of less than 5 years. Long-term uses of the human environment include those impacts occurring over a period of more than 5 years, including permanent resource loss.

The Proposed Action would not result in intensification of land use at Picatinny or the surrounding area. Implementation of the Proposed Action would result in the removal of 104 buildings and return their footprints to a natural condition. Therefore, it is anticipated that the Proposed Action would result in short-term adverse impacts to land use or visual resources during deconstruction activities but result in beneficial and cumulative effects upon completion of the Proposed Action and over the longer term. .

3.6 *Irreversible and Irretrievable Commitments of Resources*

The irreversible environmental changes that would result from implementation of the Proposed Action involve the consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Material Resources. Material resources used for the Proposed Action include various material supplies. Most of the materials that would be consumed are not in short supply and would not limit other unrelated construction activities.

Energy Resources. Energy resources used for the Proposed Action would be irretrievably lost. These include petroleum-based products, such as gasoline, diesel, natural gas, and electricity. During remediation and demolition, gasoline and diesel would be used for the operation of construction vehicles. Consumption of these energy resources would not place an overburdening demand on their availability in the region.

Biological Habitat. The Proposed Action would not result in the long-term loss of vegetation or wildlife habitat on proposed remediation and demolition sites. Proposed activities would occur on already disturbed land that is classified as industrial use.

Furthermore, the Proposed Action would not remove open space or undeveloped land currently functioning as biological habitat.

Human Resources. The use of human resources for remediation and demolition activities is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

4.0 MITIGATION SUMMARY

Mitigation of a specific adverse impact could be implemented in a number of ways. Mitigation is most often taken in the context of repairing, rehabilitating, or restoring the area impacted by an action. The initial form of mitigation sought is avoidance of impacts by not performing an action or a particular part of an action. Mitigation may also take the form of minimizing an impact by minimizing the action, either in degree or magnitude. The reduction or elimination of impacts over time through the preservation and maintenance of remaining resources is also considered mitigation.

Picatinny places a strong emphasis on avoidance, minimization, and mitigation of impacts resulting from a proposed project. This section summarizes those mitigation measures suggested for each resource area described in **Section 3.0**.

Mitigation measures have been developed to minimize short- and long-term impacts to the Proposed Action. No commitments are proposed for the No Action Alternative. BMPs and mitigation measures for any potential impacts to the human and physical environment are contained in **Table 4-1**.

Table 4-1
Summary of Best Management Practices and Mitigation Measures

Resource Area	BMPs and Mitigation Measures under Proposed Action
Land Use	<ul style="list-style-type: none"> • No environmental commitments
Air Quality	<ul style="list-style-type: none"> • Contractors will use heavy construction equipment with emissions control technology to meet New Jersey Emissions Standards. • Restrict engine idling to 10-minute interval maximums. • Approved non-toxic soil binders will be applied to active unpaved roadways, unpaved staging areas, and unpaved parking areas throughout construction, to reduce fugitive dust emissions. • Water disturbed areas of active construction sites at least three times per day (more often if uncontrolled fugitive dust is noted). • Schedule construction delivery traffic outside of peak-hour traffic patterns for the local community, and other construction traffic will be minimized to the extent feasible. • Building burns will occur during daylight hours at wind speeds between 3 mph and 17 mph.

Resource Area	BMPs and Mitigation Measures under Proposed Action
Water Resources	<ul style="list-style-type: none"> • Implement erosion and sediment control practices such as sediment trapping and filtering, following the details of the project's E&SCP. • Use silt fencing, storm drain protection, straw mulching, and reseed bare surfaces. • All water used in decontamination activities will be captured and tested for contamination. • Toxic or hazardous chemicals will not be applied to soil or vegetation as part of interim measure actions. • All land-disturbing activities will be planned and conducted to minimize the size of the area to be exposed at any one time and length of time of exposure. • After building demolition, best stormwater management practices will be used and whenever possible, same-day cleanup will be performed to minimize potential groundwater impact.
Soil Contamination	<ul style="list-style-type: none"> • Land disturbance in contaminated areas will be minimized, and sediment erosion control measures will be performed to minimize the potential for spreading contaminated soil. • Contractors will take post-excavation samples to ensure any potential soil contamination is appropriately documented so it can be addressed by the installation restoration program or other appropriate program.
Soil Erosion	<ul style="list-style-type: none"> • Soil erosion and siltation control measures will include the use of silt fencing, straw bales, and/or hydro-mulching in and adjacent to construction areas. • Installation contractors will be responsible for complying with SOPs and applicable health and safety regulations.

Resource Area	BMPs and Mitigation Measures under Proposed Action
Wetlands	<ul style="list-style-type: none"> • The proposed project will comply with federal, state, and local regulations governing construction activities. • An E&SCP will be submitted to Morris County and certified prior to proposed remediation and demolition activities. • Review pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the proposed activities will not have a major impact on wetlands. • Spill prevention, control, and countermeasure procedures will reduce the potential for any hazardous substances used during construction to be discharged to wetlands. • Apply for an individual permit under New Jersey's Freshwater Wetlands Act if there are any impacts to wetlands. • Consult with state and federal agencies as part of the NJDEP permitting process. Picatinny will be subject to the special conditions and restrictions of the permit. • Remove hazardous materials from a building before demolishing. • Upon project completion, ensure no mounding and sufficient soil coverage for revegetation of indigenous species. • Properly stabilize all disturbed areas. • No clearing, cutting, or removal of vegetation in a transition area except for vegetation within 20 ft of the structure if such a disturbance is determined necessary to facilitate its removal. • Replant all vegetated areas temporarily disturbed within the riparian zone with indigenous, non-invasive species upon project completion.
Floodplains	<ul style="list-style-type: none"> • No environmental commitments
Biological Resources	<ul style="list-style-type: none"> • Restore disturbed areas and replace with native species or similar vegetation species after completion of construction activities. • Obtain Clean Water Act Sections 404 and 401 permits as required to mitigate riparian corridors and compensate for vegetation loss.
Cultural Resources	<ul style="list-style-type: none"> • Develop Historic Narratives with SHPO for all historic property demolitions prior to their final demolition as mitigated through the RPMP and FRP Programmatic Agreement (Appendix D).

Resource Area	BMPs and Mitigation Measures under Proposed Action
Traffic and Transportation	<ul style="list-style-type: none"> • Prepare construction schedules for distribution to Picatinny employees prior to proposed activities. • Provide specific construction routes to contractors to minimize conflicts with routine vehicular traffic. • Open burn activities would occur during daylight hours (before 1400 hours) on weekends to minimize any potential effects to the Picatinny workforce and surrounding community.
Health and Safety	<ul style="list-style-type: none"> • Identify the construction zone and prohibit access to unauthorized individuals. • The use of cranes and other high-profile equipment will require a “spotter” when operating near any overhead hazards. • To minimize vehicle accidents, construction personnel will direct heavy vehicles entering and exiting the site. • Picatinny has also incorporated stringent safety standards and procedures into day-to-day operations.
Hazardous Materials and Hazardous Wastes	<ul style="list-style-type: none"> • Contractors will be responsible for managing hazardous materials in accordance with federal and state regulations. • Hazardous waste handling and storage will conform to current Hazardous Waste Management Plan and BMPs for Spill Prevention and Control and include spill response and notification procedures. • Conduct demolition activities in accordance with the Asbestos Management Plan, LBP Management Plan, and AR policies. • All construction personnel will follow a worker protection program that is fully addressed in the Accident Prevention Plan that has been developed for Picatinny
Solid Waste	<ul style="list-style-type: none"> • Contractors are required to recycle a minimum of 50% of construction and demolition waste. • PCB Bulk Product Waste and or PCB Contamination will be disposed of in accordance with TSCA regulations.

5.0 SUMMARY AND CONCLUSIONS

The purpose of this project is to implement the FRP and DERP programs at Picatinny. The Proposed Action includes assessing, remediating, and/or demolishing up to 104 buildings at Picatinny. These buildings are spread throughout the installation and have a varied usage history. The buildings have been unused for various lengths of time ranging from several years to decades. The buildings are in various stages of disrepair and in some cases, the structural integrity of the buildings is poor causing the potential hazardous conditions. As a result of manufacturing operations in the subject buildings over many decades, the potential for contamination in building interior, exterior, and equipment exists. Demolition would remove potential hazards associated with these buildings including hazards from asbestos, ORM, explosives contamination, and structural condition.

While the No Action Alternative would have no effect on the human or natural environment at Picatinny, it would prohibit the installation from developing and implementing a long-range strategy to use its real property assets effectively to support the installation's mission. No remediation and demolition of the identified buildings in disrepair would occur at Picatinny under this alternative. Potentially hazardous conditions in these buildings would remain, and the areas occupied by the buildings would not be returned to their natural setting. Structural and explosives hazards would remain in place.

It was determined that a number of VECs would not be affected by implementing the Proposed Action. Those VECs include airspace, energy, noise, socioeconomics, environmental justice, infrastructure, and recreation.

The Proposed Action would likely have minor to moderate adverse impacts on air quality, hazardous waste and hazardous materials, and solid waste. Proposed activities could involve minor incursions into wetlands transition areas which may require a permit issued by the New Jersey Department of Environmental Protection. In the long term, there would be a beneficial effect on wetlands and water resources due to a decrease in impervious area with the removal of 104 buildings.

There would be a short-term and minor adverse impact on traffic and transportation and health and safety. The installation's road network can accommodate the projected short-term increase in traffic volume during proposed activities. Adjacent off-post roadways, particularly SR 15, would be further stressed over the short term, but the effect may largely be mitigated by adjusting the timing of traffic signals.

The Proposed Action would likely have short-term negligible to minor adverse impacts on soil contamination, soil erosion, biological resources, and cultural resources. No impacts to floodplains are anticipated as a result of activities under the Proposed Action.

Implementing the Proposed Action would have no adverse effect on land use of non-government properties outside the installation's border.

Implementing the Proposed Action would have a beneficial effect on land use on the installation by supporting the mission for future redevelopment of Picatinny.

The impacts associated with the Proposed Action and the No Action Alternative is summarized in **Table 5-1** and is based on information discussed in detail in **Section 3.0** of this PEA.

Table 5-1
Alternatives Analysis Matrix

Valued Environmental Components	Proposed Action	No Action Alternative
Airspace	○	○
Energy	○	○
Noise	○	○
Socioeconomics	○	○
Environmental Justice	○	○
Infrastructure	○	○
Recreation	○	○
Land Use	+	○
Air Quality	◇	○
Water Resources	○	○
Soil Contamination	○	○
Soil Erosion	○	○
Wetlands	○	○
Floodplains	○	○
Biological Resources	○	○
Cultural Resources	○	○
Traffic and Transportation	○	○
Health and Safety	○	○
Hazardous Materials and Hazardous Waste	⊗	○
Solid Waste	○	○

Symbol Key: Significant Impact X; Less Than Significant Impact ◇; Beneficial impact +; Moderate Impact ⊗; Not Applicable; N/A; Minor or no Impact ○

Based on the analysis presented in this PEA, the Proposed Action will not result in a significant impact to the environment. Therefore, an EIS is not necessary for this Proposed Action. This conclusion is documented in a FONSI (**Appendix G**).

6.0 LIST OF PREPARERS

This PEA has been prepared under the direction of the Picatinny Environmental Affairs Division. The individuals who contributed to the preparation of this document are listed below.

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Several people were contacted or consulted during the preparation of the PEA and are listed below.

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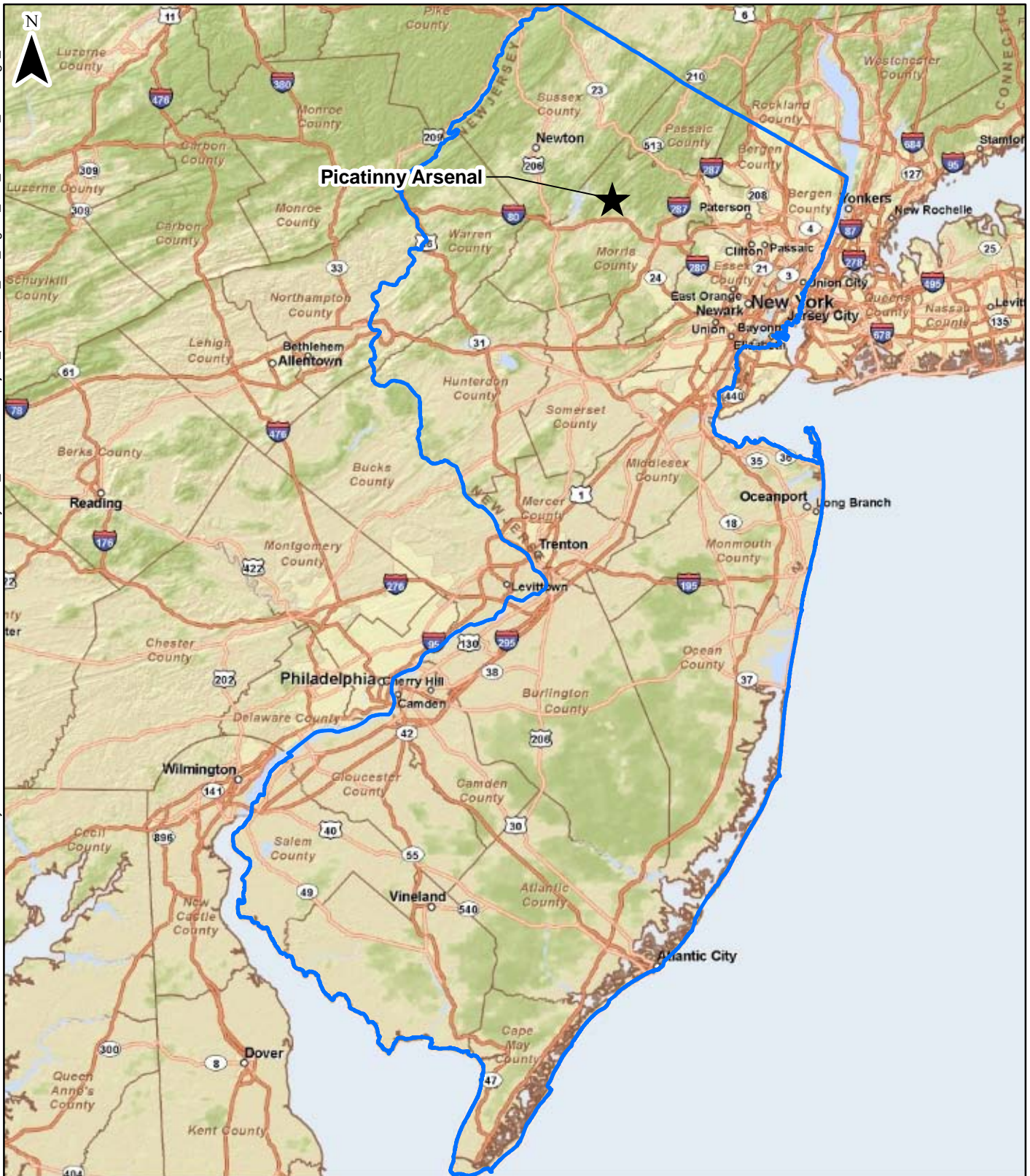
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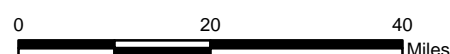
FIGURES



Picatinny Arsenal Installation Location

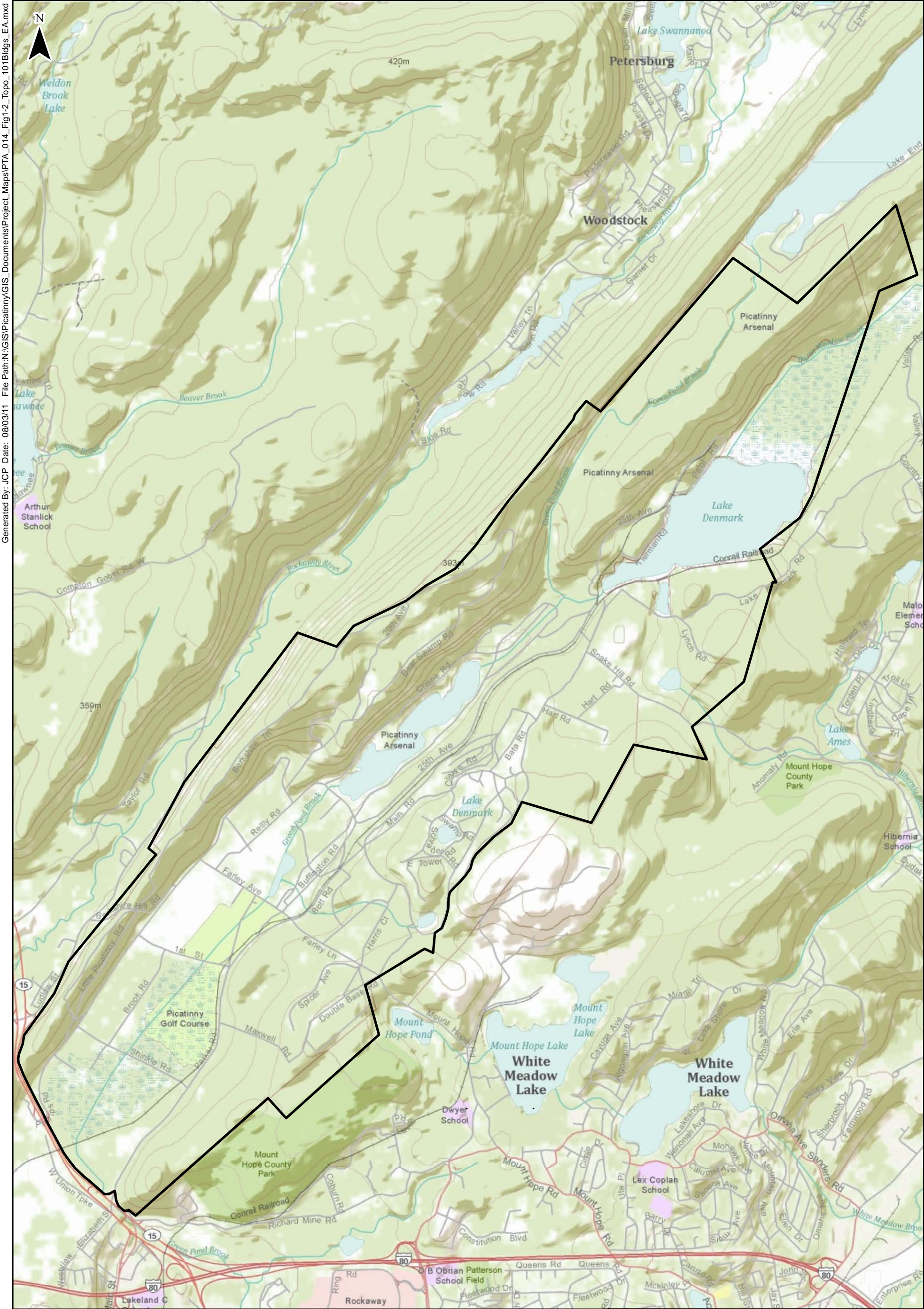



New Jersey Boundary



Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

 U.S. ARMY ENGINEERING SUPPORT CENTER HUNTSVILLE	
MILITARY MUNITIONS RESPONSE PROGRAM	
FIGURE NUMBER 1-1	LOCATION OF PICATINNY ARSENAL AND SURROUNDING AREA PICATINNY ARSENAL, NEW JERSEY
 Shaw Environmental, Inc.  ITSI Innovative Technical Solutions, Inc. <small>A Gilbane Company</small>	



 Picatinny Arsenal Boundary

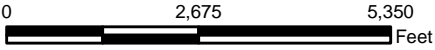


**U.S. ARMY
ENGINEERING SUPPORT CENTER**
HUNTSVILLE

MILITARY MUNITIONS RESPONSE PROGRAM

FIGURE
NUMBER
1-2

**TOPOGRAPHY OF PICATINNY ARSENAL
AND SURROUNDING AREA
PICATINNY ARSENAL, NEW JERSEY**



Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

 **Shaw** Shaw Environmental, Inc.

 **ITSI** Innovative
Technical
Solutions, Inc.
A Gilbane Company



- 11

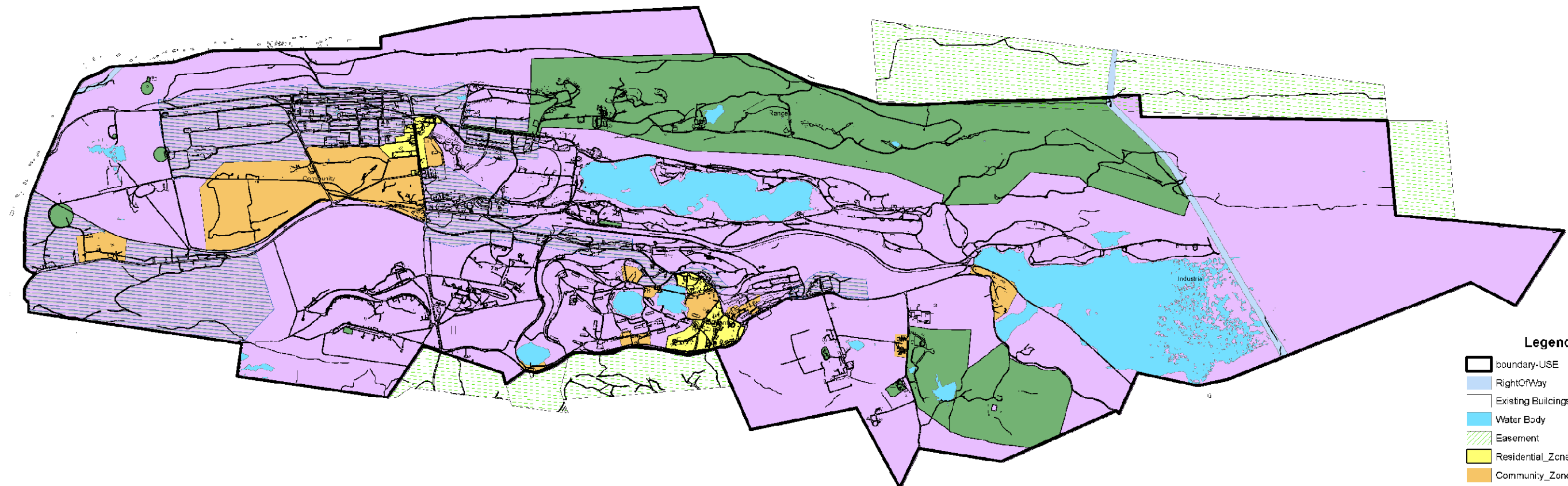
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MILITARY MUNITIONS RESPONSE PROGRAM

LOCATION OF BUILDINGS PROPOSED
FOR REMEDIATION AND/OR DEMOLITION
PICATINNY ARSENAL, NEW JERSEY





- Legend**
- boundary-USE
 - RightOfWay
 - Existing Buildings
 - Water Body
 - Easement
 - Residential_Zone
 - Community_Zone
 - Ranges_and_Training_Zone
 - Professional_Institutional_Zone
 - Industrial_Zone

Picatinny Arsenal

Draft Master Planning Zoning Map

Draft Map Dated 3 May 2011

- Notes:
- 1) Draft Master Planning Zoning Map image was obtained from Picatinny Arsenal, July 2011.
 - 2) Image is not to scale.



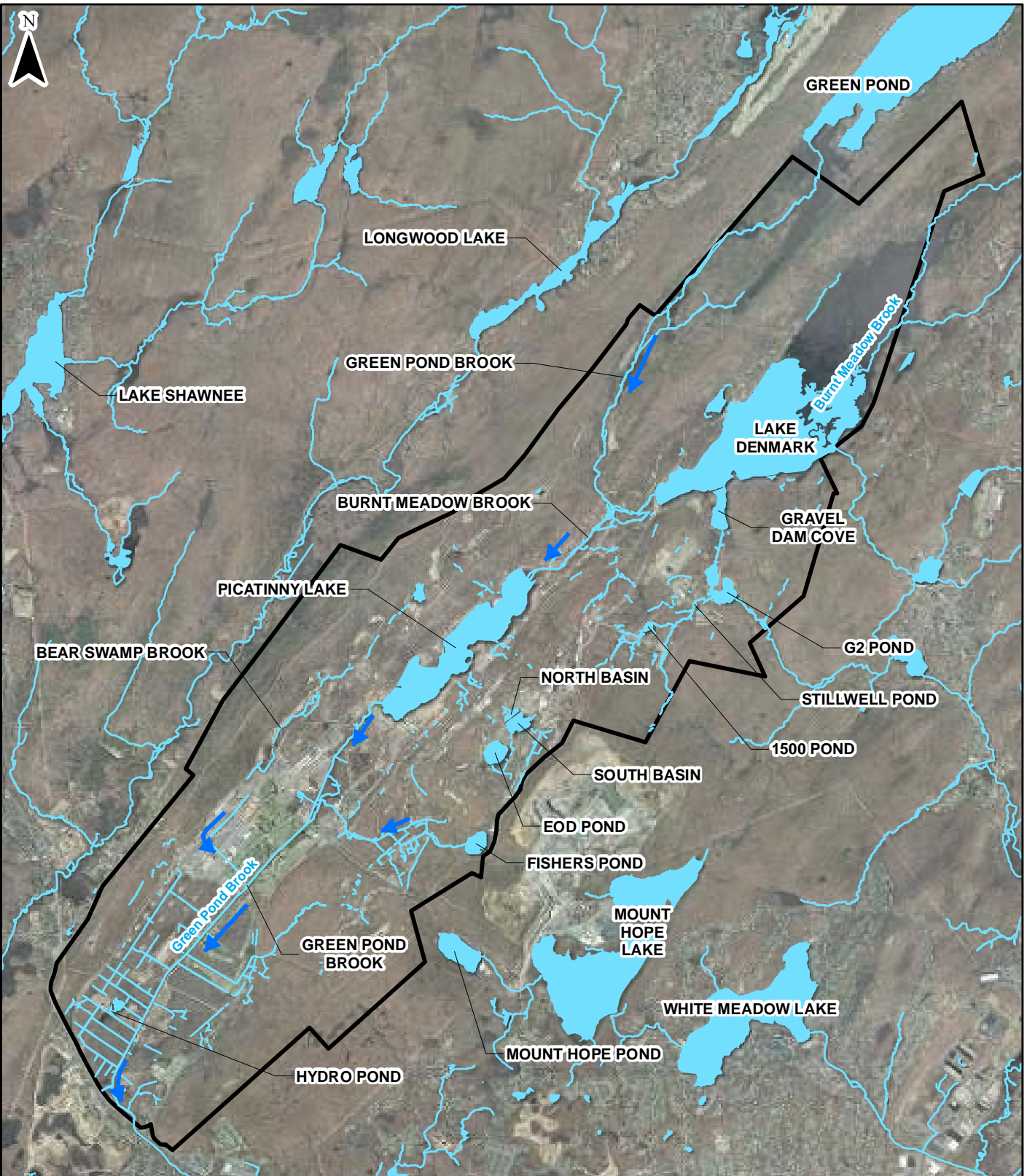
U.S. ARMY
ENGINEERING SUPPORT CENTER
HUNTSVILLE

MILITARY MUNITIONS RESPONSE PROGRAM

FIGURE
NUMBER
3-1

DRAFT MASTER PLANNING ZONING MAP
PICATINNY ARSENAL, NEW JERSEY






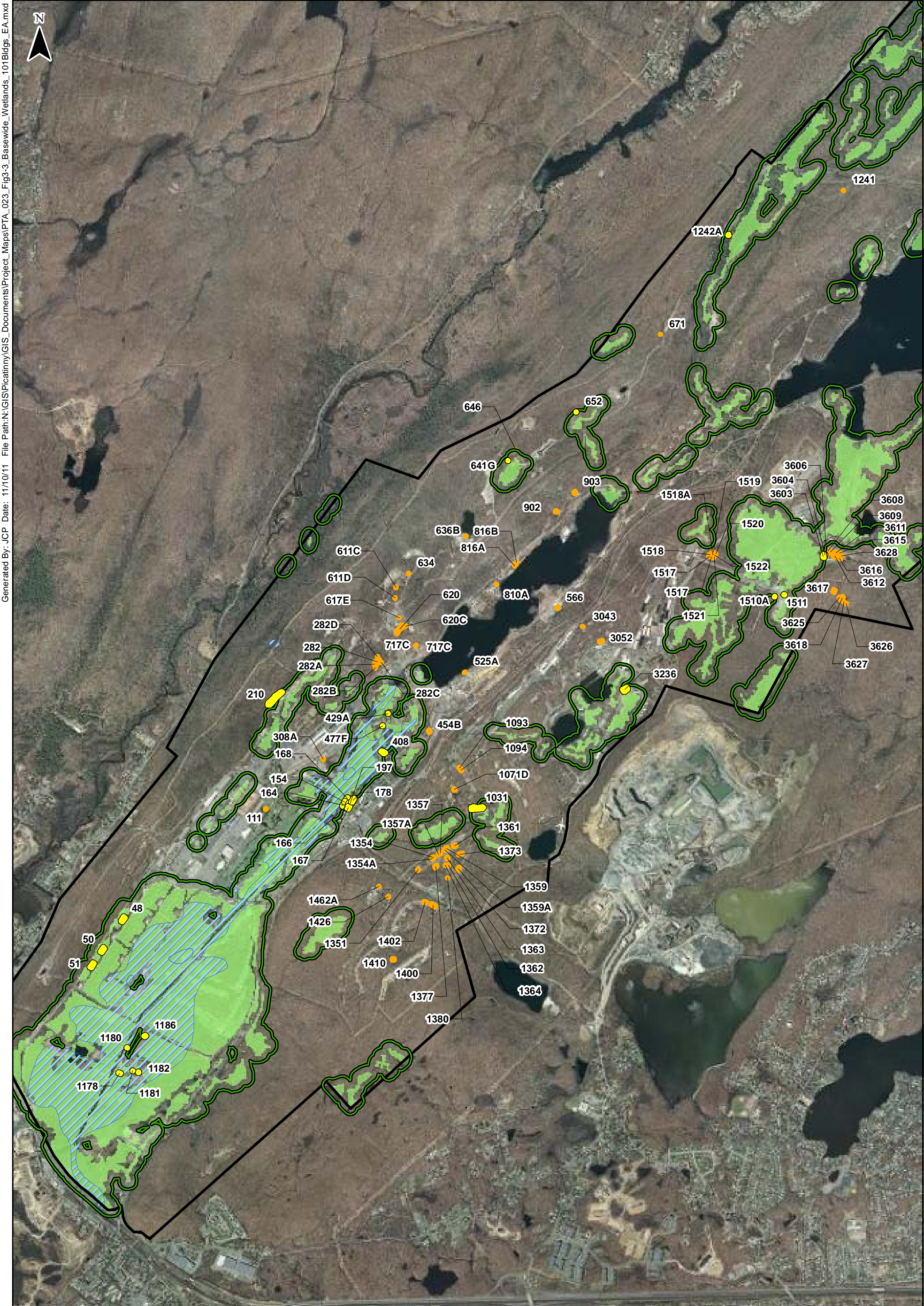



- Water Feature
- ➔ Surface Water Flow Direction
- Picatinny Arsenal Boundary


0 4,000 8,000 Feet


Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet


 U.S. ARMY ENGINEERING SUPPORT CENTER HUNTSVILLE	
MILITARY MUNITIONS RESPONSE PROGRAM	
FIGURE NUMBER 3-2	WATER RESOURCES IN THE PICATINNY AREA PICATINNY ARSENAL, NEW JERSEY
 Shaw Environmental, Inc.	
 ITSI Innovative Technical Solutions, Inc. <small>A Gillison Company</small>	





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Building Proposed for Remediation and/or Demolition, within 150 Feet of Wetland
- 

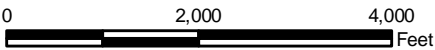
Building Proposed for Remediation and/or Demolition, Outside 150-Foot Wetland Buffer
- 

Wetland
- 

150-Foot Wetland Buffer
- 

100-Year Flood Zone
- 

Picatinny Arsenal Boundary



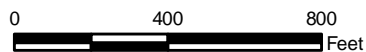
Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

	U.S. ARMY ENGINEERING SUPPORT CENTER HUNTSVILLE
MILITARY MUNITIONS RESPONSE PROGRAM	
FIGURE NUMBER 3-3	WETLANDS PICATINNY ARSENAL, NEW JERSEY
 Shaw Environmental, Inc.	 Innovative Technical Solutions, Inc. <small>A Gilbane Company</small>



- Building Proposed for Remediation and/or Demolition, within 150 Feet of Wetland
- Building Proposed for Remediation and/or Demolition, Outside 150-Foot Wetland Buffer
- Wetland

- 150-Foot Wetland Buffer
- Picatinny Arsenal Boundary



Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet



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MILITARY MUNITIONS RESPONSE PROGRAM

**FIGURE
NUMBER
3-4**

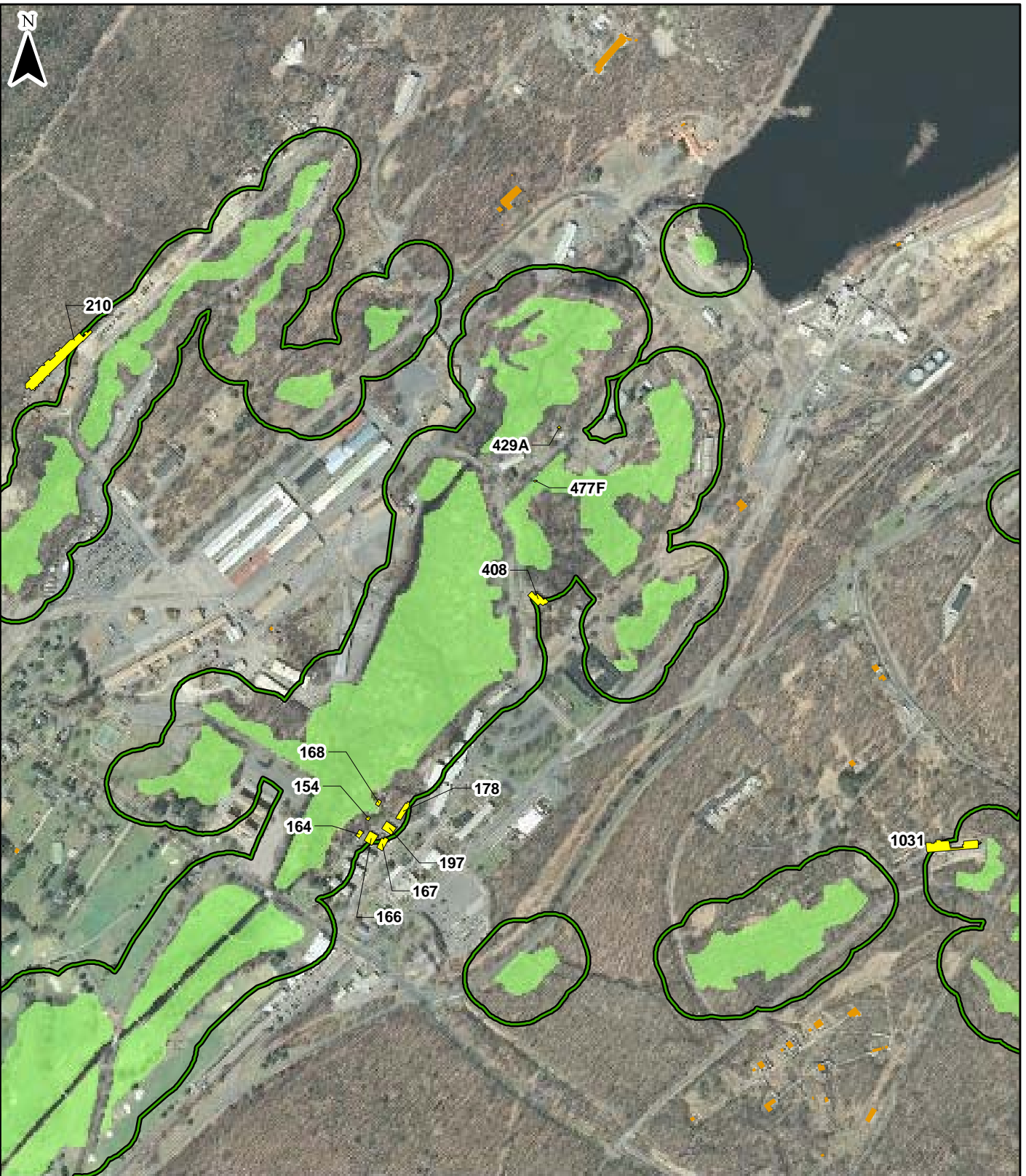
**SOUTHERN BUILDINGS WITHIN
150 FEET OF WETLANDS
PICATINNY ARSENAL, NEW JERSEY**



Shaw Environmental, Inc.



**Innovative
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Solutions, Inc.**
A Gillson Company



- Building Proposed for Remediation and/or Demolition, within 150 Feet of Wetland
- Building Proposed for Remediation and/or Demolition, Outside 150-Foot Wetland Buffer
- Wetland
- 150-Foot Wetland Buffer
- Picatinny Arsenal Boundary

0 700 1,400 Feet

Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet



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MILITARY MUNITIONS RESPONSE PROGRAM

**FIGURE
NUMBER
3-5**

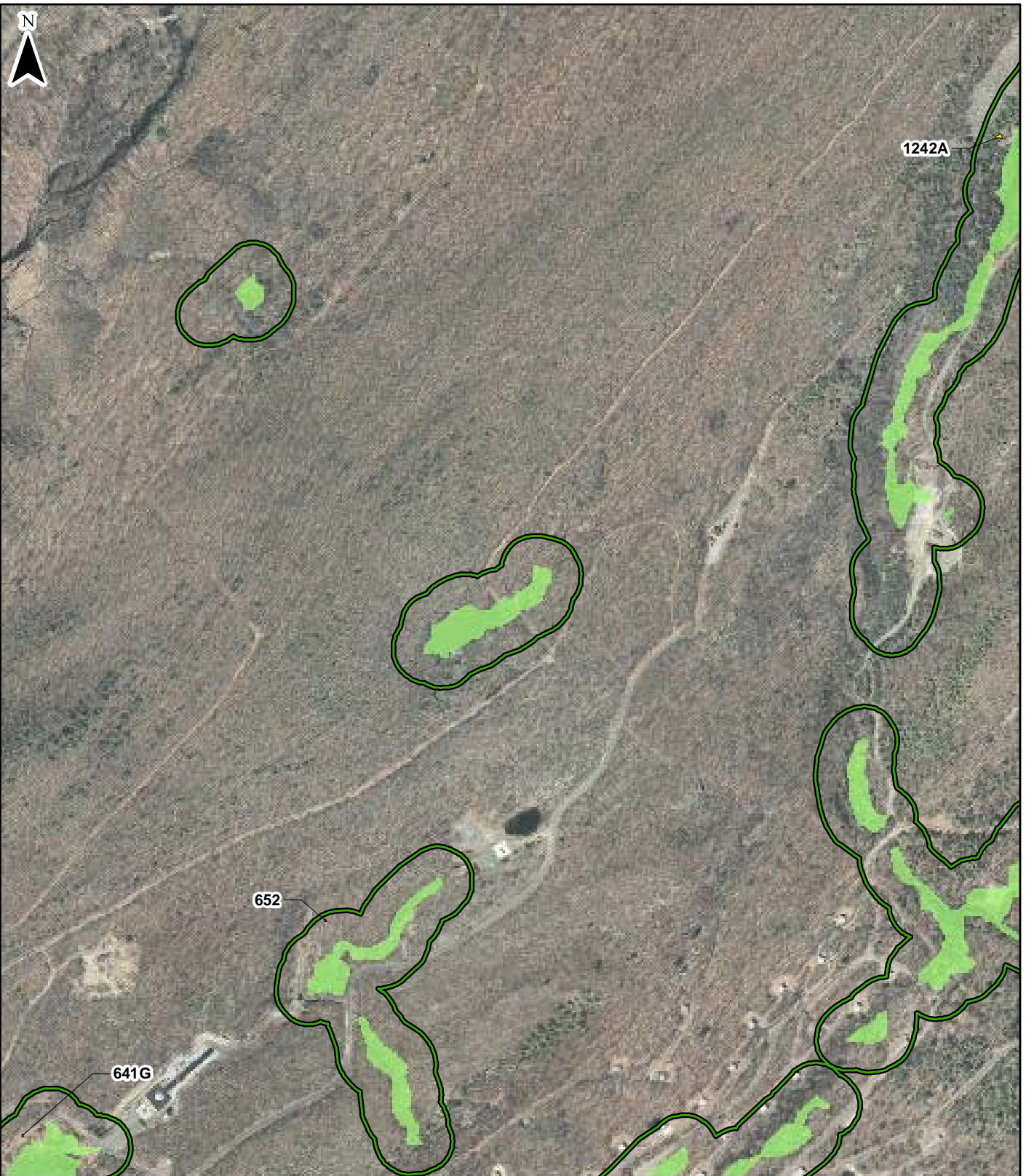
**CENTRAL BUILDINGS WITHIN
150 FEET OF WETLANDS
PICATINNY ARSENAL, NEW JERSEY**



Shaw Environmental, Inc.



**Innovative
Technical
Solutions, Inc.**
A Gillbane Company

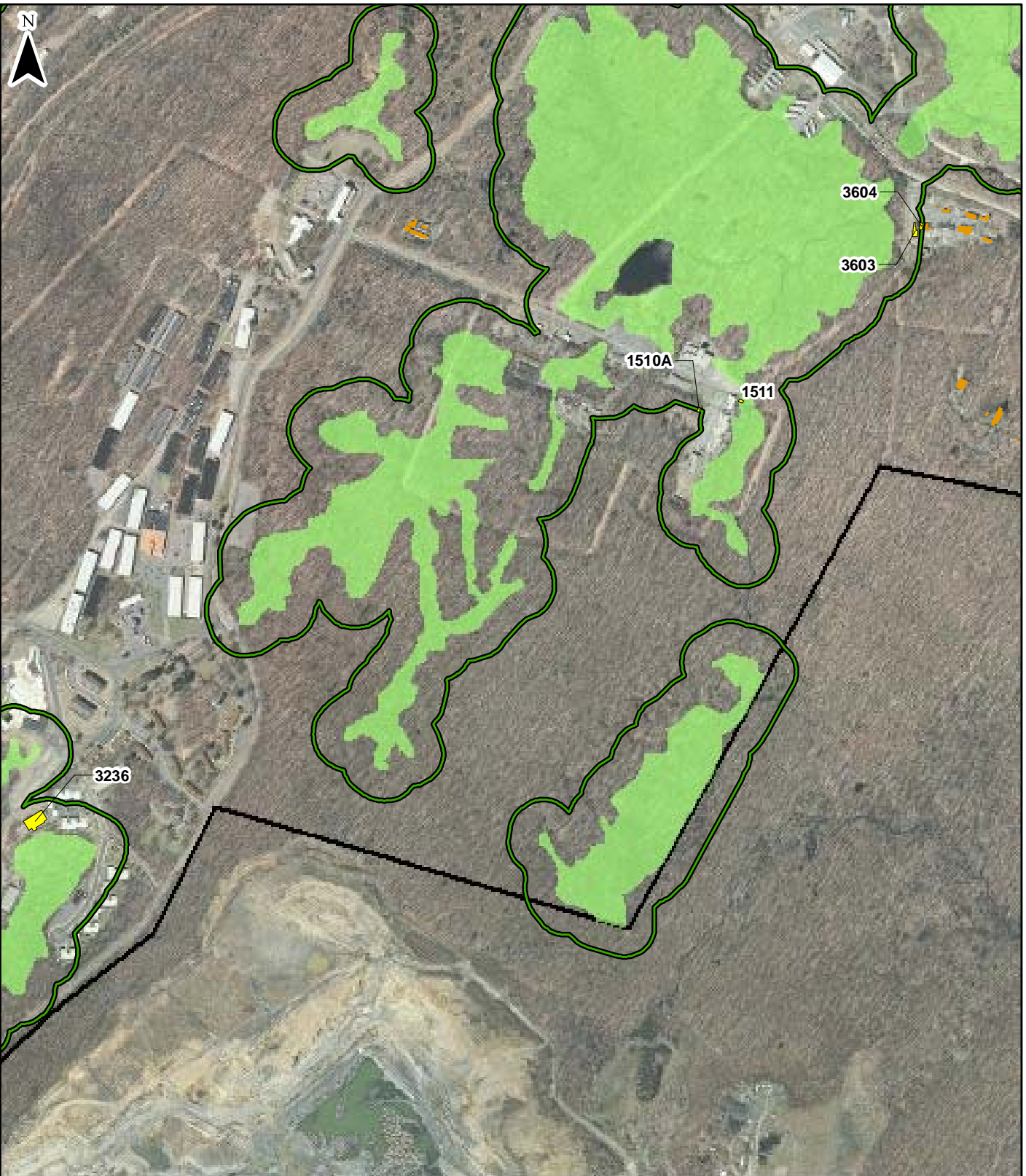


- Building Proposed for Remediation and/or Demolition, within 150 Feet of Wetland
- Building Proposed for Remediation and/or Demolition, Outside 150-Foot Wetland Buffer
- Wetland
- 150-Foot Wetland Buffer

0 700 1,400 Feet

Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

U.S. ARMY ENGINEERING SUPPORT CENTER HUNTSVILLE	
MILITARY MUNITIONS RESPONSE PROGRAM	
FIGURE NUMBER 3-6	NORTHWEST BUILDINGS WITHIN 150 FEET OF WETLANDS PICATINNY ARSENAL, NEW JERSEY
Shaw Environmental, Inc. Innovative Technical Solutions, Inc. <small>A Gillson Company</small>	



- Building Proposed for Remediation and/or Demolition, within 150 Feet of Wetland
- Building Proposed for Remediation and/or Demolition, Outside 150-Foot Wetland Buffer
- Wetland
- 150-Foot Wetland Buffer
- Picatinny Arsenal Boundary

0 700 1,400 Feet

Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet



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MILITARY MUNITIONS RESPONSE PROGRAM

**FIGURE
NUMBER
3-7**

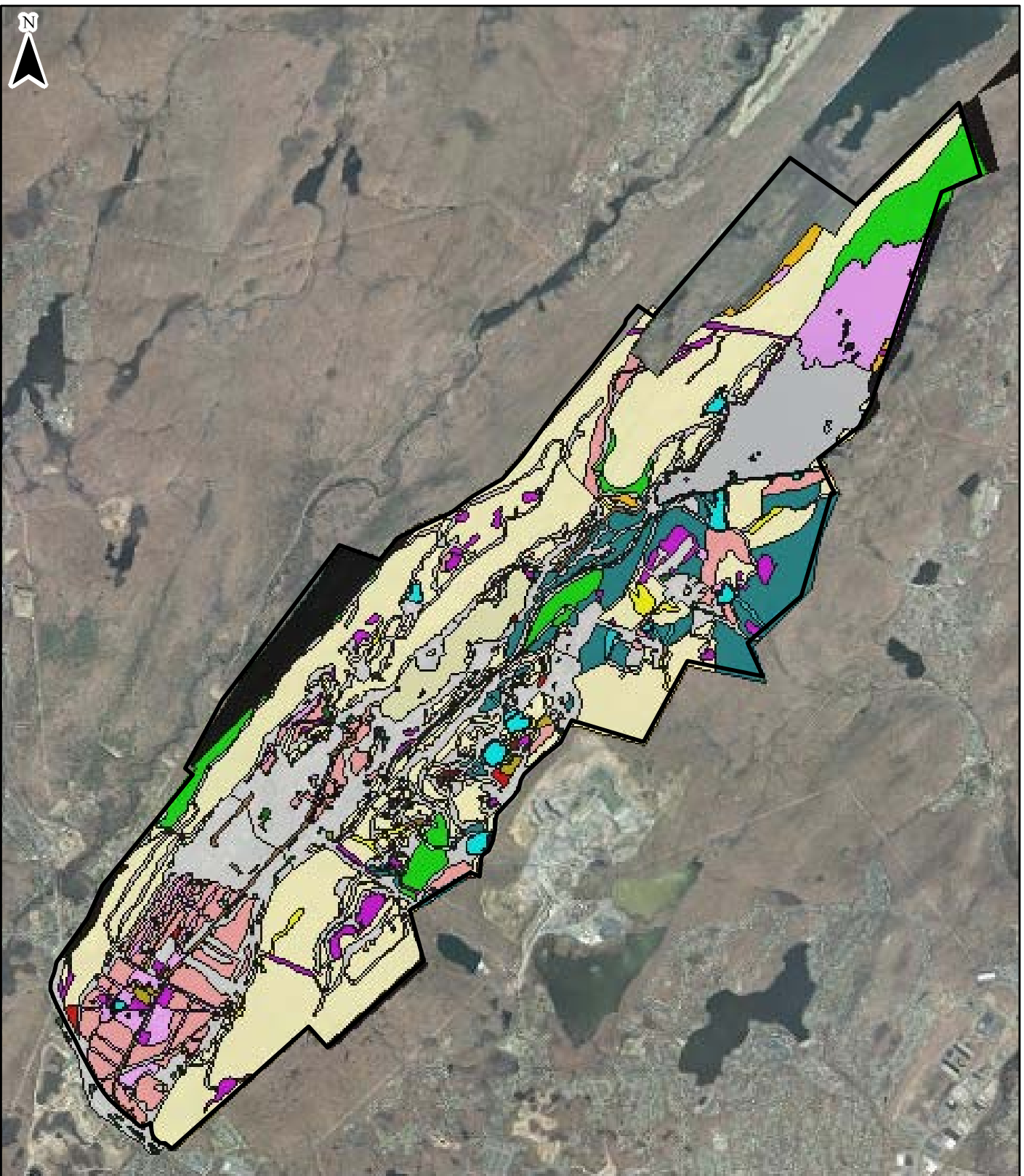
**NORTHEAST BUILDINGS WITHIN
150 FEET OF WETLANDS
PICATINNY ARSENAL, NEW JERSEY**




Shaw Environmental, Inc.



**Innovative
Technical
Solutions, Inc.**
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









 Picatinny Arsenal Boundary

Vegetation Source: CADD-based vegetation was obtained from "Identification and Analysis of Wetlands, Floodplains, Threatened and Endangered Species, and Archaeological Geomorphology at Picatinny Arsenal, NJ," report, U.S. Army Waterways Experiment Station (WES), September, 1994.

0 4,000 8,000
Feet

Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

	U.S. ARMY ENGINEERING SUPPORT CENTER HUNTSVILLE
MILITARY MUNITIONS RESPONSE PROGRAM	
FIGURE NUMBER 3-8	VEGETATION PICATINNY ARSENAL, NEW JERSEY
 Shaw Environmental, Inc.	

	Red Maple
	Red Maple (on hydric soils)
	Mixed Oak
	Mixed Oak (on hydric soils)
	Northern Hardwoods
	Northern Hardwoods (on hydric soils)
	Hemlock Hardwoods
	Hemlock Hardwoods (on hydric soils)
	Eastern Hemlock
	Aspen/Birch
	Aspen/Birch (on hydric soils)
	Early Successional
	Early Successional (on hydric soils)
	Pine
	Non-Forested Areas
	Hydric Soils (moist soils)
	Water
	No Info
	Unidentifiable Trees

Vegetation Source: CADD-based vegetation was obtained from "Identification and Analysis of Wetlands, Floodplains, Threatened and Endangered Species, and Archaeological Geomorphology at Picatinny Arsenal, NJ," report, U.S. Army Waterways Experiment Station (WES), September, 1994.



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MILITARY MUNITIONS RESPONSE PROGRAM

**FIGURE
NUMBER
3-8A**

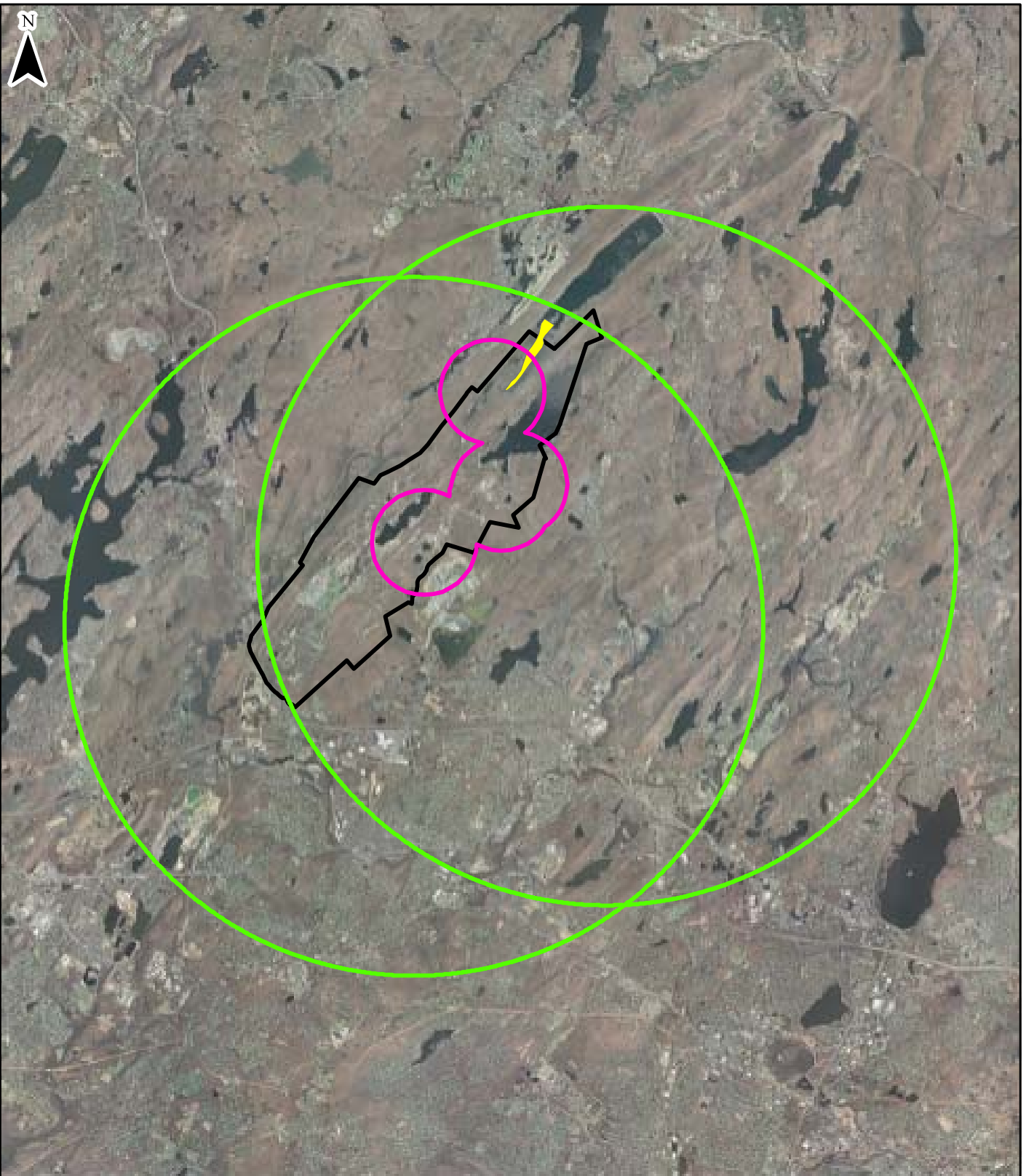
**VEGETATION LEGEND
PICATINNY ARSENAL, NEW JERSEY**



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- Indiana Bat Spring and Fall Hibernacula Foraging Buffer Area (5 miles)
- Indiana Bat Zone of Concern (Roosting Site)
- Picatinny Arsenal Boundary
- Bogturtle Habitat Area

0 2 4 Miles

Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet



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MILITARY MUNITIONS RESPONSE PROGRAM

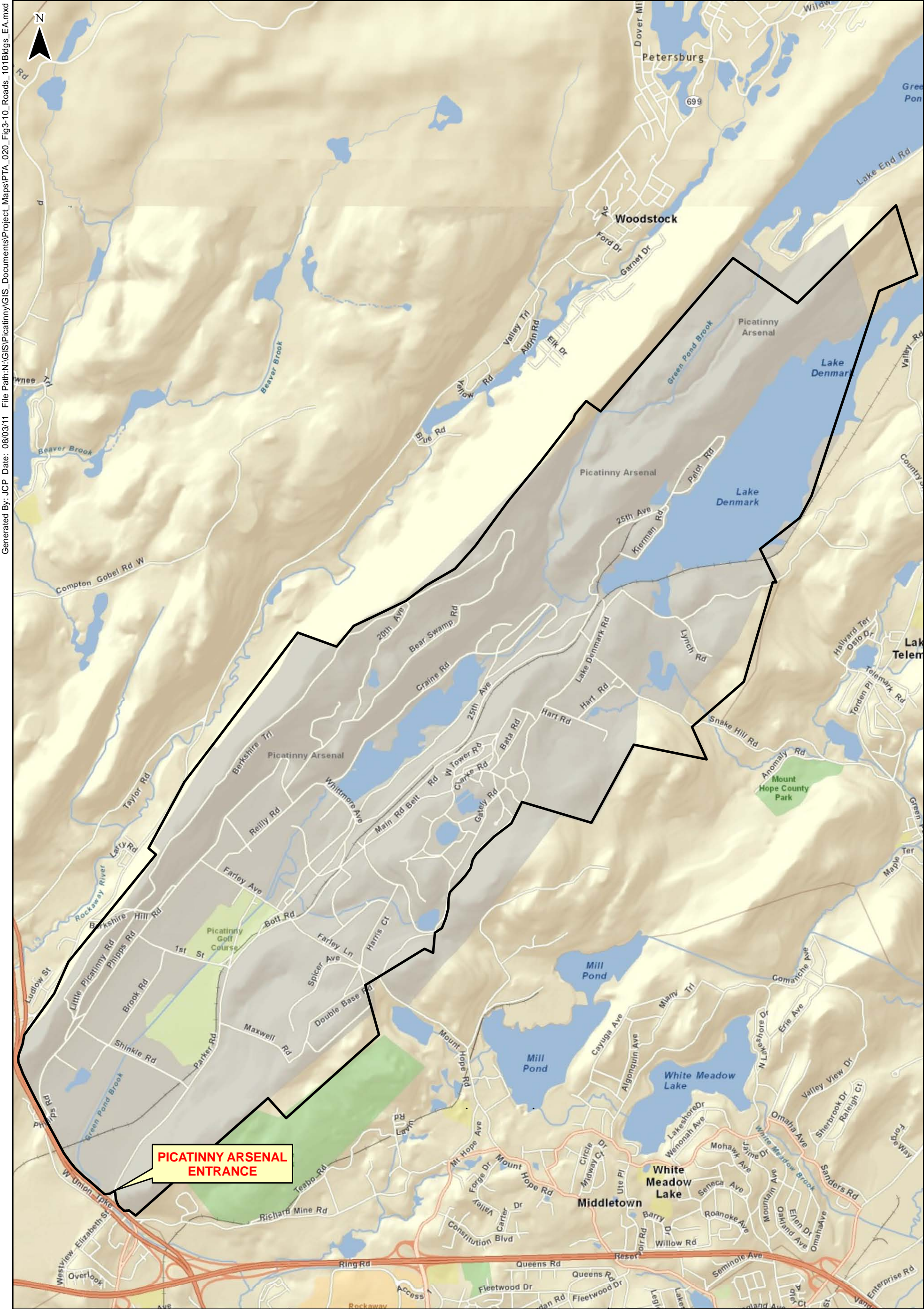
**FIGURE
NUMBER
3-9**


**THREATENED AND ENDANGERED
SPECIES LOCATIONS
PICATINNY ARSENAL, NEW JERSEY**



Shaw Environmental, Inc.





 Picatinny Arsenal Boundary

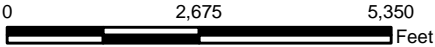


**U.S. ARMY
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HUNTSVILLE

MILITARY MUNITIONS RESPONSE PROGRAM

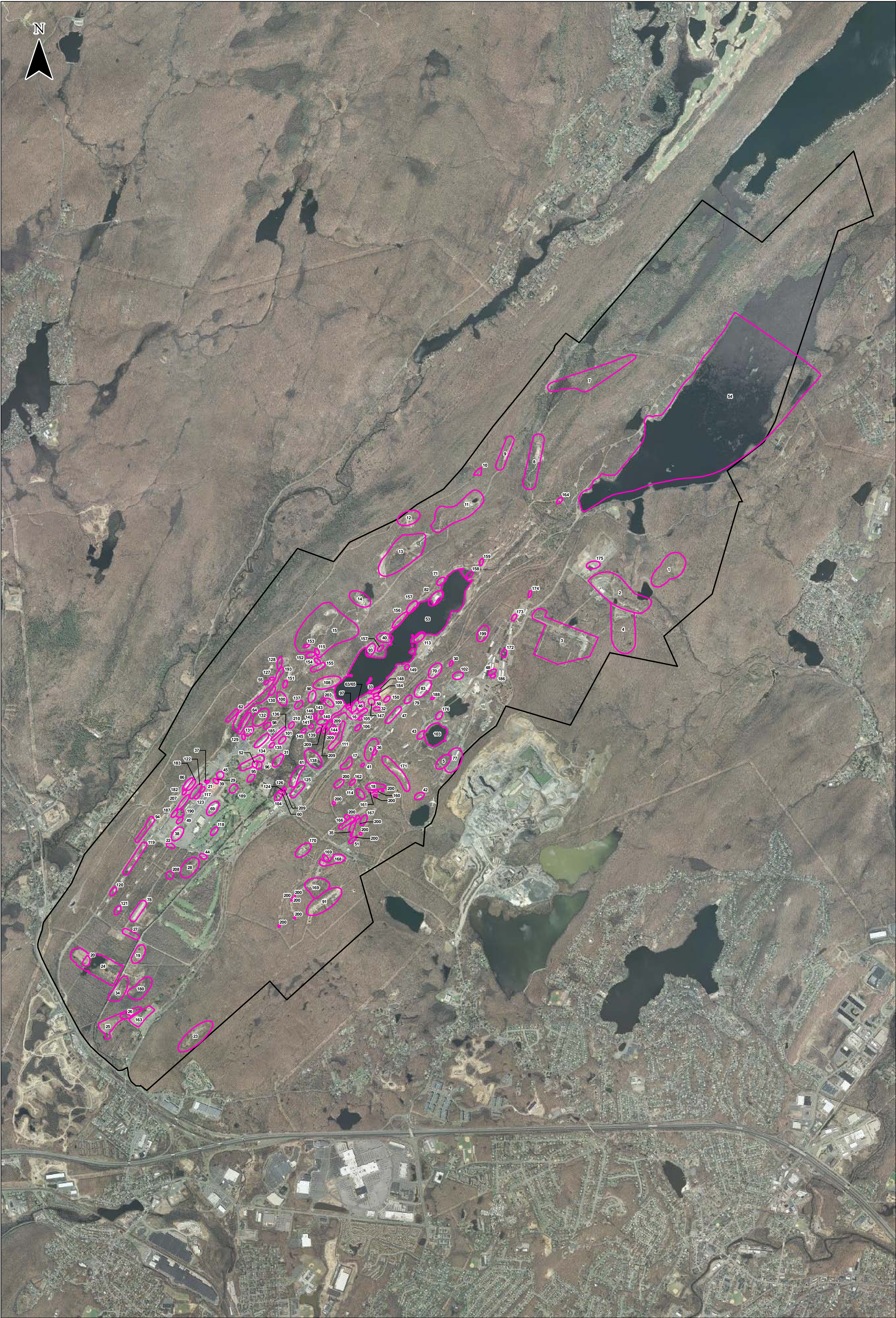
FIGURE
NUMBER
3-10



PICATINNY ROAD NETWORK
PICATINNY ARSENAL, NEW JERSEY



Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet





 IRP Site Boundary
 Picatinny Arsenal Boundary



**U.S. ARMY
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MILITARY MUNITIONS RESPONSE PROGRAM

**FIGURE
NUMBER
3-11**

**IRP SITES
PICATINNY ARSENAL, NEW JERSEY**



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Projection : NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

APPENDIX A
ENVIRONMENTAL CHECKLIST
FOR IDENTIFYING FUTURE NEPA REQUIREMENTS
BEYOND THIS PEA FOR CONDUCTING REMEDIATION
AND/OR DEMOLITION ACTIVITIES AT PICATINNY

The Picatinny Building Remediation and/or Demolition project at Picatinny Arsenal, New Jersey is a complex undertaking which would take place over multiple phases at buildings to be remediated and/or removed as part of the Facility Reduction Program (FRP). The scope of each phase will be somewhat dependent upon the results of the preceding phase. For example, the amount and type of explosives remediation to be completed will be dependent upon the nature and extent of explosives contamination identified in the Materials Potentially Presenting and Explosive Hazard (MPPEH) assessment. Therefore National Environmental Policy Act (NEPA) compliance is best performed in a Programmatic Environmental Assessment (PEA), which covers each phase of the work in as much detail as possible given what is known at this time. Some details will not be known until the building characterization is complete. Therefore, NEPA requirements for these details cannot be met at this time in the PEA.

This Environmental Checklist is intended to provide a framework for identifying any NEPA requirements beyond this PEA for the proposed remediation and/or demolition of buildings. Appendix B provides a summary of 104 buildings to be remediated and/or demolished under the PEA's Proposed Action. Additional buildings may be identified in the future. At each phase of this project, the checklist will be completed to determine NEPA compliance with that activity. As each project phase is completed and prior to beginning the next activity, the project proponent will determine if the checklist should be completed for the next activity. It is anticipated that the checklist will be completed for some or all of the following project activities:

- Debris Removal (including limited brush clearance)
- MPPEH Assessment
- Explosives Remediation
 - Wet Demolition
 - Building or Equipment Flashing
 - Building Burn in Place
- Utility Disconnect
- Building Demolition
- Asbestos Abatement
- Removal of Other Regulated Materials

If the conditions of the checklist in this Appendix are met, and if the procedures and mitigation measures are adopted by the installation proponent, the construction can then proceed.

If some checklist conditions are not met, the installation does not adopt the provisions of this PEA, or the Environmental Affairs Division finds this PEA inadequate, a separate EA will be required.

That EA will culminate in either a separate Finding of No Significant Impact (FNSI), or if significant effects are identified, a Notice of Intent (NOI) to prepare an Environmental Impact Statement.

The considerations in this PEA and the checklist are comprehensive, but may not be sufficiently exhaustive to address site-specific conditions at Picatinny or unforeseen project actions of future phases. For this reason, the installation's environmental staff must review this PEA, evaluate the checklist conditions and requirements, and determine the appropriate course of action. If an EA is required, it can supplement this PEA, addressing only those topics or issues that require further evaluation.

To use the attached checklist to evaluate the Proposed Action, answer each question with a "Yes," "No," or "N/A", as appropriate. Use the "Comments" row for any comments pertaining to the Proposed Action, or identify existing programs or BMPs, regulations, or policies that mitigate an issue identified in the checklist. Any questions regarding completion of this checklist should be directed to the Environmental Affairs Division. Document any outside coordination and describe all BMPs or other mitigating actions.

Environmental Checklist for Identifying Future NEPA Requirements Beyond this PEA for Conducting Remediation and/or Demolition Activities at Picatinny

Project Name:

Project Description:

Project Location:

Project Manager: _____

Phone:

Email:

Project Contact (*if different from project manager*):

Proposed Project Start Date and Duration:

This checklist is to be completed for proposed activities under the Building Remediation and or Building Demolition project at Picatinny. Its purpose is to determine if the action would be covered by the Programmatic Environmental Assessment (PEA) for the Remediation and or Demolition of Buildings. The yes or no answers to questions either indicate compliance with the PEA or the need for additional documentation. If the applicable sections of the checklist have been completed and the Proposed Action qualifies for coverage by the PEA, the activity may proceed. If the checklist indicates the need for additional analysis, or if the Proposed Action is not otherwise covered by the PEA, then the need for further National Environmental Policy Act (NEPA) analysis will be assessed.

The valued environmental components reviewed and discussed in the PEA include land use, air quality, water resources, soil contamination, soil erosion, wetlands, floodplains, cultural resources, biological resources, traffic and transportation, health and safety, hazardous materials and hazardous waste, solid waste, airspace, energy, noise, socioeconomics, environmental justice, infrastructure, and recreation. Although all of these resources are evaluated, the PEA is "issue-driven" and emphasizes the resources of most concern to the project: land use, air quality, water resources, soil contamination, soil erosion, wetlands, floodplains, cultural resources, biological resources, traffic and transportation, health and safety, hazardous materials and hazardous waste, and solid waste. These are included in the checklist below.

A. Compliance with this PEA

Yes

No

N/A

1. Are the buildings proposed for remediation/demolition part of the FRP or DERP programs and would remediation techniques discussed in the PEA be considered and potentially applied? If yes, continue to next question; if no, the environmental analysis required under NEPA may not be tiered from this PEA. Initiate a separate NEPA action.

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Comments:

B. Land Use

Yes

No

N/A

1. Does the proposed activity alter existing land use as to cause severe incompatibility with existing or adjacent land uses? If yes, evaluate existing/adjacent land uses; if

☐

☐

☐

no, continue to next question.			
2. Does the proposed activity cause significant changes to existing or regional land use? If yes, evaluate adjacent land uses; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
C. Air Quality	Yes	No	N/A
1. Does the proposed activity include burning buildings other than the five buildings (210, 408, 1362, 1363, 1373) included in the Air Dispersion Model presented in the PEA? If yes, further analysis and coordination with air quality permitting authority may be required; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the proposed activity cause violation(s) of the installation's Title V Operating Permit for criteria and hazardous air pollutants? If yes, further analysis, and coordination with air quality permitting authority may be required; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the proposed activity cause violation(s) of the installation's Title V Operating Permit? If yes, further analysis, and coordination with air quality permitting authority may be required; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
D. Water Resources	Yes	No	N/A
1. Does the proposed activity reduce water availability or supply to existing users? If yes, initiate/conduct further analysis and implement additional mitigation measures to prevent the affect on water supply; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the proposed activity over draft groundwater aquifers or exceed the safe annual yield of water supply sources? If yes, initiate/conduct further analysis and develop alternative methodologies which reduce water usage; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the proposed activity cause an unpermitted deposition of sediment into "Waters of the U.S.?" If yes, initiate/conduct further analysis and coordinate with the proponents of the other action(s); if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the proposed activity cause a violation of a New Jersey (NJ) water quality regulation or a NJ or federal discharge permit? If yes, initiate/conduct further analysis and coordinate with the proponents of the other action(s); if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the proposed activity result in soils or other deconstruction materials landing in a surface water body (e.g., stream, creek, pond, lake)? If yes, develop mitigation measures to eliminate risk of soils or other deconstruction materials landing in a water resource; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Do site characteristics of the building(s) and proximity to surface waters potentially allow for migration of contaminants into surface waters? If yes, initiate further analysis as needed; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

E. Soil Contamination		Yes	No	N/A
7.	Does the proposed activity involve the excavation of soil at a site currently being investigated under the Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP)? If yes, (1) review existing data to determine if the soil to be excavated is contaminated; (2) coordinate with Environmental Affairs Division to minimize soil disturbance; and (3) implement additional protective measures for site workers and the environment. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Does the proposed activity involve the excavation of soil in a location subject to institutional controls based on a Record of Decision completed under the IRP? If yes, coordinate with Environmental Affairs Division to minimize soil disturbance and implement additional protective measures for site workers and the environment. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
F. Soil Erosion		Yes	No	N/A
1.	Does the proposed activity involve the disturbance of more than 5,000 square feet of soil in one location? If yes, prepare, submit and obtain approval for an Erosion and Sediment Control Plan from the Morris County Soil Conservation District; if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
G. Wetlands		Yes	No	N/A
1.	Does the proposed activity cause long-term impacts to wetlands? If yes consultation with the Land Use Regulation Program (LURP) and the preparation, submission, and approval of appropriate wetlands permits would be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Does the proposed project cause a short term degradation of the wetland from unpermitted deposition of sediment or spills into wetlands? If yes, initiate/conduct further analysis and coordinate with the Environmental Affairs Division to review proposed mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Does the proposed activity occur within an exceptional resource value wetland or a trout production water way? If yes, initiate/conduct further analysis and coordinate with the Environmental Affairs Division to review proposed mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Does the proposed activity alter existing water elevations? If yes, initiate/conduct further analysis and coordinate with the Environmental Affairs Division to review proposed mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Does the proposed activity have any direct or indirect adverse impacts to swamp pink habitat? If yes, initiate/conduct further analysis and coordinate with the Environmental Affairs Division to review proposed mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
H. Floodplains		Yes	No	N/A
1.	Does the proposed activity endanger public health by creating or worsening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

health hazard conditions? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.			
2. Does the proposed activity violate established laws or regulations adopted to protect floodplains? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the proposed activity involve the cutting of vegetation within the flood hazard area? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the proposed activity result in an increase of impervious surfaces? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the proposed activity have impacts on groundwater recharge? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does the proposed activity increase stormwater discharge? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does the proposed activity result in impacts to channels, riparian zones, or increase erosion potential or turbidity? If yes, initiate further analysis and determine more effective mitigation measures. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
I. Cultural Resources	Yes	No	N/A
1. Is the proposed remediation/deconstruction on property covered as part of Picatinny's Section 106 consultation on its Programmatic Agreement (PA). Is that property historic or eligible for listing in the National Register of Historic Places?? If yes, consult with the Environmental Affairs Division as to whether Historic Narrative documentation is completed prior to proceeding with demolition of these properties. Further, review the PA for any mitigation measures to be implemented as well as preservation design guidelines for the defined character areas in Picatinny. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the proposed activity on one of the 30 historic properties listed for demolition in the FRP as severely contaminated? If yes, consult with the Environmental Affairs Division as to whether Historic Narrative documentation is completed prior to proceeding with demolition of these properties. Further, review the PA for any mitigation measures to be implemented as well as preservation design guidelines for the defined character areas in Picatinny. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
J. Biological Resources	Yes	No	N/A
1. Does the proposed activity cause a substantial increase in soil compaction resulting in decreased re-vegetation potential? If yes, initiate preliminary survey. Further analysis may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the proposed activity cause fragmentation, loss or degradation of high quality natural areas or sensitive sites? If yes, initiate preliminary survey. Further analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

may be required. If no, continue to next question.			
3. Does the proposed activity cause local destruction of rare or sensitive plant species? If yes, initiate preliminary survey. Further analysis may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the proposed activity cause local population impacts on local flora or fauna. If yes, make necessary revisions? If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the proposed activity cause long-term loss or impairment of local habitat. If yes, make necessary revisions. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does the proposed activity cause permanent loss of habitat to a level below that required to achieve long-term species recovery? If yes, Endangered Species Act Section 7 Consultation with the U.S. Fish and Wildlife Service (USFWS) may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does the proposed activity violate conditions in a biological opinion? If yes, Section 7 Consultation with the USFWS may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Does the proposed activity have direct impacts or disturbance to candidate species for federal or state listing? If yes, Section 7 Consultation with the USFWS may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Does the proposed activity cause an unpermitted "take" of a federally-listed species or loss of designated critical habitat. If yes, Section 7 Consultation with the USFWS may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
K. Traffic and Transportation	Yes	No	N/A
1. Does the proposed activity result in an increase in vehicle traffic that could not be accommodated by the roadway network? If yes, initiate and conduct further analysis and determine alternate routes to mitigate the impact. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the proposed activity result in traffic circulation problems? If yes, initiate and conduct further analysis and consider mitigation measures such as performing road blockages during off hours. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The proposed activity would cause an increase in traffic volume that would reduce the level of service (LOS). to LOS E or F. If yes, initiate and conduct further analysis and coordinate with the proponents of the other action(s); if no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
L. Health and Safety	Yes	No	N/A
1. Does the proposed activity increase potential for death, serious bodily injury, illness, or property damage? If yes, coordinate with installation safety office to modify procedures for safe operation. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
M. Hazardous Materials and Hazardous Waste	Yes	No	N/A
1. Does the proposed activity cause Picatinny to violate laws or regulations governing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

hazardous material/waste management and/or violate the installation's hazardous waste permit. If yes, coordinate with installation hazardous waste management specialists and state regulator as necessary. If no, continue to next question.			
2. Does the proposed activity increase the amounts of hazardous materials procured, or hazardous waste generated, beyond current procedures and capacities? If yes, coordinate with installation hazardous waste management specialists and state regulator as necessary. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the proposed activity result in worker or visitor hazardous materials exposure? If yes, coordinate with installation hazardous waste management specialists and state regulator as necessary. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the proposed activity disturb known, or create new, contaminated sites which would negatively impact human health of the environment? If yes, coordinate with installation hazardous waste management specialists and state regulator as necessary. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the proposed activity cause the storage, use, transport or disposal of hazardous materials to increase risk to human health the environment? If yes, initiate preliminary survey. Further analysis may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does Picatinny have a maintenance program to ensure BMPs reduce, to the maximum extent possible, migration of lead and other metals from the building(s) proposed for remediation/demolition? If yes, specify and describe all implemented BMPs and engineering measures. If no , implement BMP analysis protocol outlined in applicable guidance documents and regulations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
N. Solid Waste	Yes	No	N/A
1. Does proposed activity result in non-compliance with applicable federal and state regulations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does proposed activity result in substantial long-term changes to solid waste management practices? If yes, initiate preliminary survey. Further analysis may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does proposed activity create an increased risk for the installation to violate local or state solid waste management regulations? If yes, initiate preliminary survey. Further analysis may be required. If no, continue to next question.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
O. Cumulative Assessment	Yes	No	N/A
1. Is a considerable amount of building remediation and/or demolition of past, present, or reasonably foreseeable actions such that it would be unreasonable and that further disclosure/analysis would be warranted? If yes, consider additional analysis to take into these actions into account. If no, and all previous answers have been no, complete the requirements for a Record of Environmental Consideration in accordance with Title 32 CFR Part 651.28, Subpart D. Enter the names, signatures, and date of those providing input to this questionnaire on the following page.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

APPENDIX B
SUMMARY OF BUILDINGS TO BE REMEDIATED AND/OR
DEMOLISHED UNDER THE PROPOSED ACTION

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
1	48	Magazine	The building was constructed in 1940 for the bulk storage of smokeless powder but was also used for the storage of other propellants and explosives. This is a 1-story 110-ft by 38-ft structure consisting of a projecting concrete foundation, 8-inch hollow-tile walls, gable roof covered with asbestos. The building has 7 exhaust vents. The building is at rail road height.	94. Storage		X	Use of the building for storage of propellant which would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
2	50	Magazine	The building was constructed in 1940 for the bulk storage of smokeless powder but was also to pack propellant surveillance samples. This is a 1-story 110-ft by 38-ft structure consisting of a projecting concrete foundation, 8-inch hollow-tile walls, gable roof covered with asbestos. The building has 7 exhaust vents. The building is at rail road height.	94. Storage		X	Use of the building for storage of propellant which would have been containerized. Use of building to pack propellant surveillance samples would have been small volume and conducted by hand with little opportunity for significant release of explosives. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
3	51	Magazine	Exact building history is unavailable however the building history is likely identical to Buildings 48 and 50.	94. Storage		X	Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
4	111	Root Storage/Greenhouse	This structure was built in 1909 in the area of the apple orchard. It was used for an indeterminate period of time to store apples or other fruits and vegetables. It is currently unused.	NA	NA	NA	NA		X
5	154	Solvent Vault/Chemistry Lab	Constructed in 1943 as a combination solvent vault /chemistry laboratory. Also called explosives sample preparation and hazardous material testing laboratory. The 16- x 16-ft building is clay hollow tile with asbestos roof. Records indicate that explosive including nitroglycerin was used in the building.	83. Propellant manufacture – single, double, or triple base	X		Although the building was not a propellant manufacturing building, the designation of propellant manufacture is potentially applicable. The fact that the building was used for single, double or triple base propellant sample preparation may result in a significant designation. The building is equipped with conductive flooring and laboratory benches. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
6	164	Chemistry/Stability Lab	There is limited information on the buildings history. It was listed in building registers as a propellant laboratory.	83. Propellant manufacture – single, double, or triple base	X		Although the building was not a propellant manufacturing building, the designation of propellant manufacture is potentially applicable. The fact that the building was used for single, double or triple base propellant sample preparation may result in a significant designation. The building had blast resistant doors, conductive flooring, and conductive laboratory benches. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
7	166	Test Conditioning Chamber General Purpose Lab and Testing	The building was constructed in 1930 of brick on a concrete foundation. The building was originally constructed as a high explosives preparation and testing laboratory. The building was used for accelerated aging of propellants.	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
8	167	High Explosive Preparation and Test Lab / Chem. Lab	Constructed in 1930 as a high explosive preparation and testing laboratory, 30-ft by 50-ft brick structure with a basement. Starting in 1967, used as a nuclear-chemical research laboratory. History indicates that low-level radioactive materials were used in the building.	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
9	168	Magazine & Conditioning Chamber GP Lab	<p>The building was constructed in 1930 with clay hollow-tile walls, concrete foundation and corrugated metal roof. The building is separated from other buildings in the area by an earth-filled timber barricade. The building was originally constructed as a Conditioning Chamber/Experimental Surveillance Magazine.</p> <p>There is no available history of the building being utilized as a General Purpose Magazine.</p>	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
10	178	Chemistry / Physics Lab	Constructed in 1938 for use as a service magazine. The building was later converted (1950s?) as a chemistry and physics laboratory. Served as an explosives sensitivity laboratory. Building is a one-story structure with clay hollow tile walls on a concrete foundation. Operations included the formulation, mixing, and pressing of energetic materials.	Not enough info	X		There is not enough information to categorize this building however the building contains a press with a blast protected cabinet with a deluge system. The proper category may be 63 or 64 both of which are significant.	X	X
11	197	Lab GP Surveillance Lab & Test Conditioning Chamber	Constructed in 1956 for propellant surveillance testing. The building is of brick construction with composite shingle roofing. The waste from this building was reportedly removed from the building for disposal at the burning grounds.	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
12	210	Ordnance Facility / Major caliber projectile loading plant (time fuze and delay loading plant)	Building is clay hollow tile and has a basement. The building is divided into multiple fire-proof bays to function as independent sections. The building was used for fuze staging, fuze assembly, and presses. Subsequent to use as a fuze facility the building was used as a hazardous waste storage facility. The building has been prepared for flashing, however the flashing was never performed because of PCB containing paint found on building piping.	29. Fuze installation or removal		X	Use of the building for fuze installation would have limited quantities of explosives that would have been contained within the fuze. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
13	282	Black powder pelleting/ initiator/ detonator/R&D Lab/ Primer Production / Test Facility	Constructed in 1942 as a general purpose magazine. The building was used for operations including pelleting, loading initiators, packaging of button bomblets, laboratory development and testing of primers and initiators and photograph development. From 1950 the building was a research and development facility for initiators and detonators.	3. Booster pellet pressing, high Solids (dusts) X speed, high volume, automated	X		Multiple explosive work bays. History of pellet pressing. Conductive flooring throughout. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
14	282A	High Explosive Magazine / Air Conditioning Plant	Constructed in 1947 as an air conditioning plant. The building was later used for inert storage	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
15	282B	High Explosive Magazine/ Fuze and Detonator Magazine	Constructed in 1942 as a high explosives magazine. The building was used as a magazine until at least the 1990s.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
16	282C	Fuze and Detonator Magazine	Constructed in 1942 as a high explosives magazine. The building was used as a magazine until at least the 1990s.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
17	282D	General Purpose Warehouse / Magazine	Constructed in 1938 as a high explosives magazine. The building was used as a magazine until the 1990s.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
18	308A	Sewage Pump	This building was constructed in 1943 as a sewage pump station. It is currently unused.	NA	NA	NA	NA		X
19	408	Laboratory/Experimental Loading; Chemical Research Lab; Lead Azide Line	Built in 1920, building 408 was constructed as a nitration building with clay hollow-tiles walls and roll roofing. Building 408 had reportedly been used for explosive melt casting and chemical synthesis operations. The building was later used for chemical storage.	2. Ammonium nitrate manufacture	X		Other applicable categories may be 9. Composition B Manufacture, 33. HMX Manufacture, 83. Propellant manufacture, 87. RDX Manufacture, or 100. TNT Manufacture. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
20	429A	High Explosive Magazine	Use of the magazine is not documented, however the associated building (Building 429) was used to crush propellant grains for testing operations.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
21	454B	Powder Facility / GP Magazine	Storage magazine formerly supporting Building 454 which has been demolished.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
22	477F	Magazine	This is a 6 x 6 one story magazine with wooden walls and an asbestos roof.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
23	525A	Chemistry Lab	Built as an acid laboratory in 1930, the building was used to support the 500 Area propellant- production buildings. The building was later used for storage of munitions and inert items. In 1961, a warheads and special projects laboratory.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
24	566	Ordnance Facility; Propellant Plant; Screening Building	The building was used as a screening house to support propellant-manufacturing operations. The building was later used in IMR propellant finishing operations and propellant bottle washing. Operational by 1961 as a screening building for smokeless powder.	83. Propellant manufacture – single, double, or triple base	X		Use of the building for screening operations could have resulted in migration of significant amounts of explosives dust. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
25	611C	Shop / Ordnance Facility	History unknown. During the 2010 Site Walk Building 611C was seen as a small movable shack.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
26	611D	Slug Butt	This building was used as a slug butt for a former firing area located in the area of Building 617. During inspection in 1996 the interior of the slug butt contained MEC. During the 2010 site walk the area in front of the slug butt was shown to be littered with munitions debris including possible HE frag.	4. Bullet impact testing	X		Although Bullet impact Testing is the closest building category, it should be noted that this slug butt was used for artillery and possibly HE configured items.	X	X
27	617E	Flammable Materials Storehouse and Magazine	Building is constructed of concrete and was reportedly used for flammable material storage.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
28	620	Ordnance Facility	The building contains an indoor small arms range. Other usages of the building are unknown however previous waste handling records indicate that the building generated floor sweepings contaminated with propellant which were disposed of at the Burning Grounds.	4. Bullet impact testing		X	Use of the building was as an indoor small arms range. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
29	620C	Ordnance Facility / Firing shelter	Building was a support building for 620 which was an indoor small arms range and ordnance building.	59. Personnel shelters		X	The building was used as a personnel shelter and as such would have had no explosives use. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
30	634	Slug Butt	The building is currently a concrete ruin.	4. Bullet impact testing		X	Although bullet impact testing is the closest building category, it should be noted that this slug butt was used for artillery and possibly HE configured items.	X	X
31	636B	General Open-Wall Storage Shed	This structure is roof over a concrete pad used for general storage.	NA	NA	NA	NA		X
32	641G	Ordnance Facility - Observation and Testing	Building is a small metal safety house.	59. Personnel shelters		X	The building was used as a personnel shelter and as such would have had no explosives use. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
33	646	Ordnance Facility - Conditioning Chamber - Pump House	Building is a small metal safety house.	59. Personnel shelters		X	The building was used as a personnel shelter and as such would have had no explosives use. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
34	652	Rocket Test Stand; Ordnance Facility; Observation Barricade	Building is a small metal safety house.	59. Personnel shelters		X	The building was used as a personnel shelter and as such would have had no explosives use. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
35	671	General Purpose Magazine	History unknown.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
36	717C	General Purpose Magazine	The building was constructed in 1948 as a general purpose magazine. The building was active through 1984.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
37	810A	Ordnance Facility - Major Caliber Projectile Loading Plant	The building was constructed in 1944 for use as a vacuum pump house in support of the melt pour operation in Building 810. In 1969 the building was considered to be contaminated with cyclotol and is believed to have been decontaminated with steam and hot water.	48. Melt-pour of explosives into projectiles, warheads, bombs, etc.	X		Although this building did not have melt-pour process taking place in it, there was melt pour in Building 810. As a vacuum house explosive vapors could have condensed in this building. Additionally this building may have been associated with waste water handling from Building 810. Based on EM	X	X

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							385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.		
38	816A	Ordnance Facility; Major Caliber Projectile Loading Plant	The building was constructed in 1944 for use as a vacuum pump house in support of the melt pour operation in Building 813 and 816. In 1969 the building was considered to be contaminated with cyclotol and is believed to have been decontaminated with steam and hot water.	48. Melt-pour of explosives into projectiles, warheads, bombs, etc.	X		Use as a vacuum pump house for a melt pour operation could have resulted in the transport of explosives vapors from Building 816. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
39	816B	General Purpose Magazine	Building 816B was constructed in 1930 for use as a large caliber loading facility. The building was later used as a compressor house for the loading operation in Building 816.	63. Pressing, low speed, automated or manual (normally used in the press loading large items, such as projectile and warheads)		X	As a large caliber loading facility release of explosives contamination would have been limited. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
40	902	Lab GP / Magazine / Rocket Propulsion/Propellant Surveillance Lab	Building 902 is a one story hollow tile structure constructed in 1930 as a laboratory. It was renovated in 1947. Munitions stored in pressurized Freon containers were stored here. The building was reportedly decontaminated with steam and hot water in 1969.	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
41	903	Lab GP / Magazine / Rocket Propulsion/ Propellant Surveillance Lab	Building 903 is a one story hollow tile structure constructed in 1930 as a laboratory. It was renovated in 1947. Munitions stored in pressurized Freon containers were stored here. The building was reportedly decontaminated with steam and hot water in 1969. This building was converted for use as inert storage in 1985.	38. Inspection (e.g. surveillance workshops, “K” lines)		X	Propellant in the building for surveillance would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
42	1031	TNT, TNA, and Nitration Processing Bldg; Experimental High Explosives Production Plant	Building was originally constructed in 1952 for the manufacturing of HMX and RDX. The building was used to manufacture a variety of high explosives throughout its history including: PETN, DATNM, DNT, TNT, BTTN, and nitro guanidine. The building also housed a fine grind operation with a jet mill as part of a low vulnerability (LOVA) propellant program. The building was shut down in the early 1980s.	100. TNT manufacture	X		Multiple explosive manufacturing operations, conductive flooring throughout. Process piping seen on site visit appeared to be contaminated with explosives. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

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43	1071D	Ordnance Facility	Exact building history is unavailable, however the building was likely used in support of Building 1071 which was an explosive crystallization building. This area was also used for tetryl manufacturing. The process equipment seen in the building was a tetryl drying operation.	98. Tetryl manufacture	X		Tetryl drying equipment still present in the building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
44	1093	Chemical Laboratory - General Purpose Magazine	Although the history of this building is unknown, it is present in a former tetryl production area. Additionally the adjacent building, 1094, was used for screening and pulverizing of nitro guanidine.	Not enough information to determine between 81 82, 83 or 98.	X		Because 83 and 98 show significant potential, significant is selected. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
45	1094	Screening and Pulverizing Bldg/General Storehouse/Storage of Sodium Dioxide Tanks	Building 1094 was constructed in 1942 as a screening and pulverizing building for nitroguanidine. In 1981 the building was renovated to store solid and liquid flammable waste. As part of the renovation the building was decontaminated to a 3x condition through washing with hot water and soap.	Not enough information to determine between 81 82, 83 or 98.	X		Because 83 and 98 show significant potential, significant is selected. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
46	1178	Change House	Based on the description and location of the building this structure was likely the change house used for the personnel operating the burning ground.	6. Change houses		X	Use of the building as a change house would result in limited opportunity for explosives release, however shower drains should be sampled. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
47	1180	Ordnance Facility/Flare Tower/Skeet Tower (Observation Tower)	This building is a 50-ft open girder steel tower built on concrete piers in 1948. There is an observation booth at the top. The tower has been used for multiple programs since construction including candle power determination of M26 flares	N/A		X	Building is an observation tower, there would have been no use of explosives. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
48	1181	Recreation Center/High House	This building is a small wooden structure constructed for use as a high house for skeet shooting.	NA	NA	NA	NA		X
49	1182	Ordnance Facility / Flare Tower / Skeet Tower (Observation Tower)	The building title for this building appears to be incorrect. This is the low house for the skeet range.	N/A		X	The building was a skeet range low house, there would have been no use of explosives. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

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50	1186	Storage Facility and Pyro Viewing Stand	Plywood and timber structure adjacent to the former pyrotechnic demonstration area. Building is largely empty. Appears to be for use during testing and storage.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
51	1241	500/1,000 meter Flight Ballistic Test Ranges	This number has been designated for the 500 meter range itself. However for the scope of this project it is being used for the navy gun turret which has been retrofitted as a safe house. The navy gun turret has also been designated Building 1240.	59. Personnel shelters		X	As a personnel shelter there would have been no explosives storage in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
52	1241A	Ordnance Building	History unknown. This building designation could not be found in available records.	NA	NA	NA	NA		X
53	1242	Ordnance Facility - 900 Meter Ballistic Test Range - Slug Butt	This number has been designated for the 900 yard range itself. For the scope of this project it is being used for the slug butt which has also been number 1242A. This is the slug butt for the 900 yard range. A site inspection conducted under the MMRP did not identify any MEC at this site. It is believed that this range was used for TP rounds only. The range was reportedly used for LAW rockets, recoilless rifles.	4. Bullet impact testing		X	Although Bullet impact Testing is the closest building category, it should be noted that this slug butt was used as an impact area for a test range. The impact media and surrounding area may be contaminated with MEC.	X	X
54	1242A	Ordnance Building	The history of this building is unknown however The slug butt utilized as part of the 900 yard recoilless rifle range has been referred to as Building 1242A.	NA	NA	NA	NA		X
55	1351	Shipping and Receiving Bldg	History unknown. However based on the building title and the proximity to the nitroglycerin production line, operations were probably limited to shipping and receiving in support of this production line.	45. Loading dock		X	Use of this building for shipping and receiving would have been for containerized items. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
56	1354	Dry/Seasoning House for Nitroglycerin	This building was used as a propellant dry house starting in 1948. The buildings were used to air dry a nitrocellulose-nitroglycerin paste produced in the	83. Propellant manufacture – single, double, or triple base	X		Nitroglycerin would have been released from the propellant mixture during drying. Based on EM 385-1-97, Table I.5-1, the type of	X	X

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		Mixes/Explosives Storage	nitroglycerin production areas for use in solvent less propellant production. Use as a dry house is believed to have continued until the 1960s. After use as a dry house ceased, the buildings continued to be used for the storage of explosives.				explosive operation indicates a significant extent of explosives residue presence.		
57	1354A	Fan House (Heater and Fan Houses)	Fan house used to dry propellant in building 1354. Would have been under positive pressure.	Fan house		X	The fan house was equipped to blow warm dry air into Building 1354. Thus would have been under positive pressure. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
58	1357	Dry/Seasoning House for Nitroglycerin Mixes/Explosives Storage	This building was used as a propellant dry house starting in 1948. The buildings were used to air dry a nitrocellulose-nitroglycerin paste produced in the nitroglycerin production areas for use in solvent less propellant production. Use as a dry house is believed to have continued until the 1960s. After use as a dry house ceased, the buildings continued to be used for the storage of explosives.	83. Propellant manufacture – single, double, or triple base	X		Nitroglycerin would have been released from the propellant mixture during drying. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
59	1357A	Fan House (Heater and Fan Houses)	Fan house used to dry propellant in building 1357. Would have been under positive pressure	Fan house		X	The fan house was equipped to blow warm dry air into Building 1357. Thus would have been under positive pressure. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
60	1359	Dry/Seasoning House for Nitroglycerin Mixes/Explosives Storage	This building was used as a propellant dry house starting in 1948. The buildings were used to air dry a nitrocellulose-nitroglycerin paste produced in the nitroglycerin production areas for use in solvent less propellant production. Use as a dry house is believed to have continued until the 1960s. After use as a dry house ceased, the buildings continued to be used for the storage of explosives.	83. Propellant manufacture – single, double, or triple base	X		Nitroglycerin would have been released from the propellant mixture during drying. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
61	1359A	Fan House	Fan house used to dry propellant in building 1357. Would have been under positive pressure	Fan house		X	The fan house was equipped to blow warm dry air into Building 1359. Thus would have been under positive pressure. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

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62	1361	In 1961, was a nitroglycerin storage and block breaking.	This building was constructed in 1948 as a propellant roll dewatering building. This involved a mill and conveyor system. In 1964 a block breaker was installed in one section of the building and the remainder of the building was converted for use as a storage facility.	83. Propellant manufacture – single, double, or triple base	X		Block breaking building could have released dust. Buildings could have nitroglycerin released from propellant. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
63	1362	In 1961, nitroglycerin continuous process building.	This building housed the continuous nitroglycerin production line.	52. Nitroglycerin manufacture	X		Nitroglycerin line is still in place and some vessels appeared to have residual material at the bottom. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
64	1363	Built in 1945 as a nitroglycerin neutralization building. Most of the 1300 dates from around 1945-47.	The building was constructed in 1945 as a neutralizing building for the NG production area. The process involved neutralizing the excess acid utilizing soda ash after the production of NG. The building was later used as part of the Biazzi NG manufacturing system. The building was reportedly triple rinsed with water in 1989.	52. Nitroglycerin manufacture	X		This was not only the neutralization building but also housed the Biazzi nitroglycerin production process. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
65	1364	Ordnance Storage Bldg- never fully historically assessed- built in 1970 (1961 – List - Observation Tower)	Building was part of the nitroglycerin production area. However the building was the control house for the Biazzi production buildings.	Control House		X	As a control house there would have been no explosives use in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
66	1372	Office and Change House.	This building was constructed in 1948 as a change house and office for the nitroglycerin production area. The building has no history of explosives use.	6. Change houses		X	Use of the building as a change house would result in limited opportunity for explosives release, however shower drains should be sampled. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
67	1373	Nitroglycerin Weighing and Mixing House	This building was constructed in 1948 as a propellant plant. The building originally included the following: emulsifier room for pumping NG, chemical storage, NG weighing and mixing (Schrader Bowl Mixer), mixing NG with other propellants, LAG storage.	52. Nitroglycerin manufacture	X		Multiple processes for nitroglycerin associated with propellant manufacturing. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
68	1377	Slum House and Elevator/ Propellant Production	The exact process taking place in a slum house is unknown but it is thought to be associated with acid neutralization or nitroglycerin purification.	83. Propellant manufacture – single, double, or triple base	X		Building was likely to contain significant quantities of nitroglycerin. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
69	1380	Ordnance Facility; Propellant Plant; Weight House (Acid Storage Tank)	This building was utilized for storing and weighing the nitric acid associated with nitroglycerin production. However it is unknown if other processes took place in this building.	83. Propellant manufacture – single, double, or triple base	X		Although the primary use of the building appears to be for acid weighing and storage, there may have been other processes which took place within the building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
70	1400	Roller Powder Building	Constructed in 1948 as a propellant roll house where solvent less propellant was rolled into sheets prior to being cut in Building 1402.	85. Pyrotechnic ingredient mixing, dry	X		Building contains many floor troughs indicating wash down may have taken place frequently. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
71	1402	Roll Preparation Bldg; Rocket Powder Propellant Plant	Constructed in 1948 as a propellant cutting building for solvent less propellant. During the 2010 site visit, the building did not appear to have floor troughs.	85. Pyrotechnic ingredient mixing, dry	X		Not enough information on the processes taking place in the building to rule it as limited. But if the process was only propellant roll cutting the building may be limited. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
72	1410	Storage Tanks (2 ea – Acetone)	This building consists of two above-ground storage tanks which were used to deliver acetone or alcohol to Building 1408C in support of propellant production.	NA	NA	NA	NA		X
73	1426	Ordnance Facility (foundation only?)	History Unknown, although the building is located in a former cast propellant manufacturing area.	5. Cast Loading	X		Not enough information on the processes taking place in the building to rule it as limited. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.	X	X
74	1462A	Ordnance Facility- never fully historically assessed- built in 1974	The exact history is unknown however this building was likely a storage building for Building 1462. Building 1462 was used in a propellant melt-pour line in the mid 1970s. Building 1462 was later	5. Cast Loading	X		While the building was likely only used for storage if energetics, there is not enough information to rule out its use as a RDX fine grind building or propellant melt pour	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
			converted for use as a RDX fine grind operation.				building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a significant extent of explosives residue presence.		
75	1510A	Storage	Building 1510A is a general storage building formerly used in support of pyrotechnic production activities in the Easter Pyrotechnic area.	NA	NA	NA	NA		X
76	1511	General Purpose Storehouse; Inert Storehouse Neutralizing and Pump Station	Building was formerly used as a pump station supporting the eastern pyrotechnics area.	NA	NA	NA	NA		X
77	1517	High Altitude Test Chamber and Lab; Pump House	The building was used for testing munitions items in environmental conditions simulating high altitude. The surrounding area was a flare production area so it is likely that flares and pyrotechnics were tested in the chambers.	10. Contained detonation chamber		X	The contained chambers were likely used for testing pyrotechnics. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
78	1517A	Electric Equipment Facility	This building was an electric building which formerly supported the high-altitude test chamber located in Building 1518.	NA	NA	NA	NA		X
79	1518	High Altitude Test Chamber and Lab; General Purpose Instrumentation Building	This building was a high altitude test chamber where munitions components were tested to determine if they would function at high altitude conditions.	NA	NA	NA	NA		X
80	1518A	High Altitude Test Chamber and Lab; General Purpose Instrumentation Building	This building formerly supported the high altitude test chamber in Building 1518.	NA	NA	NA	NA		X
81	1519	Ready Magazine/High Explosives Magazine	Storage magazine in support of High Altitude Test Chamber	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
82	1520	Ready Magazine/High Explosives Magazine	Storage magazine in support of High Altitude Test Chamber	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
83	1521	Ready Magazine/High Explosives Magazine	Storage magazine in support of High Altitude Test Chamber	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
84	1522	Ready Magazine/High Explosives Magazine	Storage magazine in support of High Altitude Test Chamber	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
85	3043	Sewage Pump House	This building was constructed as a sewage lift station. The building is located within the former munitions storage (igloo area) which formerly supported the explosives research laboratories in the 3000 Area.	NA	NA	NA	NA		X
86	3052	Wood Craft Shop	This building was constructed in 1926 as a wood craft shop. The building is adjacent to the former barracks, Building 3050.	NA	NA	NA	NA		X
87	3236	Flammable Material Storehouse	This structure was built in 1930 as a flammable materials storehouse.	NA	NA	NA	NA		X
88	3603	NARTS Stand D-1 / Test Cell Booster	This building was originally constructed as a rocket test stand in the late 1950s. The rockets tested at this site included both liquid and solid rocket fuel. The liquid fuels were predominantly ammonia based. Subsequent to the rocket testing this building may have been retrofitted for use as an outdoor explosives testing building.	92. Static test stand for warheads, projectiles, etc		X	This large concrete structure was built for the static testing of rocket engines. Historically these rockets were fueled with liquid rocket fuel. There would have been no explosives use in the building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
89	3604	General Purpose Building	This general purpose building was constructed in support of the Naval Air Rocket Test Station (NARTS) facility. This building supported the rocket test stand in Building 3603	NA	NA	NA	NA		X
90	3605	Electric Equipment Facility	This was an electric facility built in support of the rocket test stand in Building 3603.	NA	NA	NA	NA		X
91	3606	NARTS Small Scale Test Stand/Propellant Systems Facility	This building was originally constructed as a general storehouse. This operational history does not match the building title in the SOW.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
92	3608	Heat Plant Oil	This was a boiler house used to heat the buildings in test area D of the NARTS facility.	NA	NA	NA	NA		X
93	3609	NARTS Oxidizer Bunker/Propellant Handling Facility/Passivation Facility/Water Flow Facility/Ordnance Facility	This building was originally constructed as a control room for the rocket test stands. The subsequent usage history is unknown. Based on the building title, the building was used for handling rocket fuels. For this area the rocket fuels consisted of ammonia and other liquid fuels.	Control Room		X	As a control house there would have been no explosives use in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	
94	3611	NARTS Instrument Shop / Electronic Equipment Facility	This building was constructed as an instrument shop for the rocket control operation. The building was later used as an electronics shop and dark room.	Electronic Shop/Control Room		X	As a control house there would have been no explosives use in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
95	3612	Naval Air Rocket Test Stand, Test Area D Components Testing/Ordnance Facility- Cold Testing of Rocket-Engine Components	This building was originally constructed as a rocket test stand. Subsequently it was used as an ordnance facility for the inspection of foreign munitions items. During the 2010 site visit an indoor test chamber with heavy bunker door was present.	92. Static test stand for warheads, projectiles, etc		X	This large concrete structure was built for the static testing of rocket engines. Historically these rockets were fueled with liquid rocket fuel. There would have been no explosives use in the building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
96	3613	Communication Electric RTD&E	This building was originally constructed as a lunch room in support of Test Area D NARTS facility.	NA	NA	NA	NA		X
97	3615	Communication Electric RTD&E	This building was originally constructed as a change house in support of Test Area D NARTS facility.	NA	NA	NA	NA		X
98	3616	Detection Equipment Building	This building was originally constructed as an environmental conditioning building in support of Test Area D NARTS facility.	NA	NA	NA	NA		X
99	3617	Control House/Propellant Systems Facility	This building was originally constructed as administrative space and control room for the 3618 test stand. Appears to have had no other usage.	Control Room		X	As a control house there would have been no explosives use in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
100	3618	Test Cell 1-E (Test Stand)	This building was originally constructed as a rocket test stand. It is the largest test stand in the area. The first floor of the test stand houses a cascade system most likely used for loading rocket engines.	92. Static test stand for warheads, projectiles, etc		X	This large concrete structure was built for the static testing of rocket engines. Historically these rockets were fueled with liquid rocket fuel. There would have been no explosives use in the building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence. However the cascade system should be investigated for the presence of residual rocket fuel.	X	X
101	3625	Propellant Systems Facility	This building is two-story corrugated metal building which appears to have been used in support of 3618. The exact usage of the building is unknown.	94. Storage		X	Storage in the building would have been containerized. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
102	3626	Ordnance Facility/Control Room	This building was originally constructed as an observation turret. It is constructed of steel and timbers. The building appears to have had no other use.	59. Personnel shelters		X	As a personnel shelter there would have been no explosives storage in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X

Item No.	Building No.	Building Description	Building History	Category of Buildings	Significant	Limited	Rationale for Building Categorization	Buildings to be Remediated under WERS Contract	Buildings to be Demolished under FRP
103	3627	Control Room	This building was a re-purposed gun turret outfitted as a control room in support of rocket testing at the NARTS facility.	NA	NA	NA	NA		X
104	3628	Gun Turret/Test Cell	This building is a Navy gun turret which was placed in Test Area D as a safety house.	59. Personnel shelters		X	As a personnel shelter there would have been no explosives storage in this building. Based on EM 385-1-97, Table I.5-1, the type of explosive operation indicates a limited extent of explosives residue presence.	X	X
	104	Total Number of Buildings			26	57			

APPENDIX C
CLEAN AIR ACT CONFORMITY ANALYSIS AND RECORD OF
NON-APPLICABILITY

RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

U.S. Army Research, Development and Engineering Command Picatinny Arsenal (Morris County), New Jersey

Introduction

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* in the 30 November 1993, Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). The U.S. Army Center for Health Promotion and Preventive Medicine published the *Technical Guide for Preparing a Record of Nonapplicability for the Conformity Rule*, in November 2003. These publications provide implementing guidance to document CAA Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR Part 1 51.850[a]).

The general conformity rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a National Ambient Air Quality Standards (NAAQS) for any of the criteria pollutants. Former nonattainment areas that have attained a NAAQS are designated as maintenance areas. Emissions of pollutants for which an area is in attainment are exempt from conformity analyses.

The Proposed Action would occur within Morris County New Jersey. This county is currently in nonattainment of the 8-hour ozone (O₃) and PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5 µm or less) NAAQS. Morris County is in attainment (or simply hasn't been designated) status for NO₂, SO₂, Lead (Pb), and PM₁₀. Therefore, only project emissions of ozone (since ozone is not a direct emission, its precursors, volatile organic compounds [VOCs] and oxides of nitrogen [NO_x]) and particulate matter are analyzed for conformity rule applicability. Table C-1 illustrates the requirements:

**TABLE C-1
AIR POLLUTANTS SUBJECT TO A GENERAL CONFORMITY REVIEW**

If the installation is located in an area designated as a Nonattainment or Maintenance area for...	Then a general conformity review must be performed for...
O ₃	nitrogen oxides (NO _x) and volatile organic compounds (VOCs)
PM _{2.5}	PM _{2.5} and PM _{2.5} precursors such as acid gases or metals

Reference: Technical Guide for Preparing a RONA for the Conformity Rule, USACHPPM, 2003

The annual *de minimis* levels for this region are listed in Table C-2. Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels (40 CFR Part 1, Section 51.853[b]) and are not regionally significant (totals less than 10 percent of projected regional emissions for that pollutant) (40 CFR Part 1, Section 93.153).

Morris County is within the Ozone Transport Region. Therefore, the *de minimis* values for VOCs are 50 tons per year (tpy) and 100 tpy for NO_x. The PM_{2.5} threshold is 70 tpy.

**TABLE C-2
GENERAL CONFORMITY POLLUTANT THRESHOLD RATES (TONS PER YEAR)**

Pollutant	Non-attainment Status	Threshold Rate (tons per year)
O ₃	Marginal/Moderate; inside ozone transport region	VOC: 50; NO _x : 100
	Serious	VOC: 50; NO _x : 50
	Severe	VOC: 25; NO _x : 25
	Extreme	VOC: 10; NO _x : 10
PM _{2.5}		
	Maintenance	PM _{2.5} : 100
	Serious	PM _{2.5} : 70

Reference: 40 CFR 51

Proposed Action

Action Proponent: Mr. James B. Smith, IMNE-PIC-DPW, Building 3002, Picatinny Arsenal, NJ

Location: U.S. Army, Installation Management Command, Picatinny Arsenal, New Jersey.

Proposed Action Name: Remediation and/or Demolition of 104 Buildings, Picatinny Arsenal, New Jersey

Proposed Action: The purpose of this project is to assess, remediate, and/or demolish 104 buildings at Picatinny to open these areas to future redevelopment and optimize property use in support of mission activities.

Total Net Project Emissions

Annual emissions from all construction activities were calculated by summing up the estimated emissions from the following activities:

- A: Emissions from construction, site preparation, and remediation. These activities are brush cutting, debris removal, ACM ORM survey, MPPEH assessment, ACM abatement, utility disconnect, MPPEH remediation, burn in place operations, and building demolition.
- B: Emissions from burning of five buildings (210, 408, 1362, 1363, and 1373)

C: Emissions from explosives used in the remediation

It was assumed that all operations occurred within a single calendar year.

Estimated construction emissions due to implementation of the Proposed Action are shown in Table C-3. Detailed calculations are in Attachment 1 of this appendix.

Based on the air quality analysis for the Proposed Action, the maximum estimated emissions would be below conformity *de minimis* levels.

TABLE C-3
ESTIMATED TOTAL NET PROJECT EMISSIONS

Source	VOC		NO _x		PM _{2.5}	
	lbs	tons	lbs	tons	lbs	tons
<i>Construction, Site Preparation, and Remediation</i>						
Brush Cutting	943.29	0.47	133.90	0.07	20.94	0.01
Debris Removal	1820.81	0.91	7782.07	3.89	658.16	0.33
ACM ORM Survey	16.51	0.01	18.00	0.01	12.75	0.01
MPPEH Assessment	13.49	0.01	14.71	0.01	10.42	0.01
ACM Abatement	560	0.28	7,443	3.72	663	0.33
Utility Disconnect	4,259	2.13	7,745	3.87	592	0.30
MPPEH Remediation	228	0.11	2,730	1.37	257	0.13
Burn-In-Place Operations	1,295	0.65	1,859	0.93	169	0.08
Building Demolition	7,895	3.95	48,447	24.22	3,660	1.83
<i>Burn-In-Place Operations</i>						
All Building Burns	27,613	13.81	1,470	0.73	15,942	7.97
<i>Explosives</i>						
All Operations	1.26	0.00	2.36	0.00	223.05	0.11
Total Net Project Emissions:	44644.24	22.32	77645.88	38.82	22209.16	11.10
Conformity Deminimis Level:		50		100		70
Exceeds De minimis Level?		NO		NO		NO

Affected Air Basin: Morris County, New Jersey

Date RONA Prepared: November 14, 2011

RONA Prepared by: U.S. Army Research, Development and Engineering Command

Proposed Action Exemption:

Provisions in the General Conformity Rule (Section 51.853(c) (1)) allow for exemptions from performing a conformity determination if total emissions of individual non-attainment or maintenance area pollutants resulting from a proposed action fall below specific threshold values (*i.e.*, *de minimis* levels) or would result in no emission increase. As discussed above, the change in the levels of NO_x and VOCs caused by the proposed action will be below the *de minimis* level. Therefore, the proposed action should be exempted from conformity analysis.

To the best of my knowledge, the information provided is correct and accurate and I concur in the finding that the proposed action will conform to the New Jersey State Implementation Plan.

RONA Approval:

Signature: _____ Date: _____

Name/Rank: _____

**Picatinny
Emissions Summary
Nov-11**

Source	VOC		NOx		PM2.5	
	lbs	tons	lbs	tons	lbs	tons
<i>Construction, Site Preparation, and Remediation</i>						
Brush Cutting	943.29	0.47	133.90	0.07	20.94	0.01
Debris Removal	1820.81	0.91	7782.07	3.89	658.16	0.33
ACM_ORM Survey	16.51	0.01	18.00	0.01	12.75	0.01
MPPEH Assessment	13.49	0.01	14.71	0.01	10.42	0.01
ACM Abatement	560	0.28	7,443	3.72	663	0.33
Utility Disconnect	4,259	2.13	7,745	3.87	592	0.30
MPPEH Remediation	228	0.11	2,730	1.37	257	0.13
Burn-In-Place Operations	1,295	0.65	1,859	0.93	169	0.08
Building Demolition	7,895	3.95	48,447	24.22	3,660	1.83
<i>Burn-In-Place Operations</i>						
All Building Burns	27,613	13.81	1,470	0.73	15,942	7.97
<i>Explosives</i>						
All Operations	1.26	0.00	2.36	0.00	223.05	0.11
Total Net Project Emissions:	44644.24	22.32	77645.88	38.82	22209.16	11.10
Conformity Deminimis Level:		50		100		70
Exceeds De minimis Level?		NO		NO		NO

Table 1
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - Brush Clearing

Equipment Type	Use	Number of		Equipment Rating	Load Factor	Per Unit Usage		Annual Usage	Emission Factor			Emissions (lb)		
		Units	Fuel Type			(hrs/day)	Days Used		VOC	NOx	PM2.5	VOC	NOx	PM2.5
Back Hoe	Clearing logs/brush	1	Diesel	84		8	5	40	0.61	10.3	0.81	4.52	76.30	6.00
Chain Saw	Cutting Trees	4	Gasoline	2		4	5	80	526.3	0.9	3.6	185.65	0.32	1.27
Stump Grinder	Removal of stumps	1	Diesel	75		4	5	20	1.2	8	1	3.97	26.46	3.31
Chipper	Disposal of Trees	1	Diesel	75		4	5	20	1.2	8	1	3.97	26.46	3.31
Weed wacker	Remove Brush	4	Gasoline	4		8	5	160	526.3	0.9	3.6	742.59	1.27	5.08
											Total	940.69	130.80	18.96

Equipment Type	Use	Number of		Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
		Units	Fuel Type					VOC	NOx	PM2.5	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	6	Gasoline	2	30	5	1800	0.544	0.593	0.42	2.16	2.35	1.67
Trucks	Pull & deliver construction equipment	2	Diesel	2	30	2	240	0.6	1.18	0.42	0.32	0.62	0.22
Site Pick-Up	On-site transport of crew and equipment	2	Gasoline	5	2	5	100	0.544	0.593	0.42	0.12	0.13	0.09
											Total	3.11	1.98

Table 2
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - Debris Removal

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage (hrs/day)	Days Used	Annual Usage (hrs)	Emission Factor			Emissions (lb)			
									VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5	
Back hoe	Loading of Debris	2	Diesel	84		6	70	840	0.61	10.3	0.81	94.89	1602.26	126.00	Assumed to be negligible
Aerial Lift	Access	1	Diesel	43		4	10	40	1.57	14	1	5.95	53.09	3.79	
Skidsteer Loader	Loading of debris	2	Diesel	50		6	70	840	0.61	10.3	0.81	56.48	953.72	75.00	Assumed to be negligible
Chop Saw	Debris removal	2	Gasoline	2		4	70	560	526.3	0.9	3.6	1299.53	2.22	8.89	
Wheeled Loader	Debris loadout	2	Diesel	200		8	70	1120	0.61	10.3	0.81	301.24	5086.53	400.01	
											Total	1758.10	7697.82	613.69	

								Emission Factor			Emissions (lb)			
Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5	
Privately Owned Vehicles	Employees commute to work	10	Gasoline	2	30	70	42000	0.544	0.593	0.42	50.37	54.91	38.89	
Trucks	Pull & deliver construction equipment	2	Diesel	2	30	5	600	0.6	1.18	0.42	0.79	1.56	0.56	
Site Pick-Up	On-site transport of crew and equipment	3	Gasoline	5	2	70	2100	0.544	0.593	0.42	2.52	2.75	1.94	
Trucks	Deliver and Haul Roll Offs	1	Diesel	1	30	64	1920	0.6	1.18	0.42	2.54	4.99	1.78	
Dump Truck	Transfer material on site	2	Diesel	5	2	70	1400	2.1	6.49	0.42	6.48	20.03	1.30	
											Total	62.71	84.24	44.46

Table 3
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - ACM/ORM Survey

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage (hrs/day)	Days Used	Annual Usage (hrs)
None								

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	8	Gasoline	2	30	27	12960	0.544	0.593	0.42	15.54	16.94	12.00
Site Pick-Up	On-site transport of crew and equipment	3	Gasoline	5	2	27	810	0.544	0.593	0.42	0.97	1.06	0.75
										Total	16.51	18.00	12.75

Table 4
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates -MPPEH Assessment

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage (hrs/day)	Days Used	Annual Usage (hrs)
None								

								Emission Factor			Emissions (lb)		
Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	7	Gasoline	2	30	25	10500	0.544	0.593	0.42	12.59	13.73	9.72
Site Pick-Up	On-site transport of crew and equipment	3	Gasoline	5	2	25	750	0.544	0.593	0.42	0.90	0.98	0.69
										Total	13.49	14.71	10.42

Table 5
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - Asbestos Abatement, Haz Waste, and ORM removal

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage (hrs/day)	Days Used	Annual Usage (hrs)	Emission Factor			Emissions (lb)		
									VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5
Back hoe	Loading of Debris	2	Diesel	84		8	125	2000	0.61	10.3	0.81	225.93	3814.90	300.01
Aerial Lift	Access	1	Diesel	43		2	25	50	1.57	14	1	7.44	66.36	4.74
skidsteers	move piping	3	Diesel	50		8	125	3000	0.61	10.3	0.81	201.72	3406.16	267.86
											Total	435.10	7287.42	572.61

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	10	Gasoline	2	30	150	90000	0.544	0.593	0.42	107.94	117.66	83.34
Site Pick-Up	On-site transport of crew and equipment	3	Gasoline	5	2	150	4500	0.544	0.593	0.42	5.40	5.88	4.17
Trucks	Deliver and Haul Roll Offs	1	Diesel	1	30	50	1500	0.6	1.18	0.42	1.98	3.90	1.39
Dump Truck	Transfer material on site	2	Diesel	5	2	100	2000	2.1	6.49	0.42	9.26	28.62	1.85
										Total	124.58	156.06	90.74

Table 6
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - Utility Removal														
Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage		Emission Factor			Emissions (lb)			
						(hrs/day)	Days Used	Annual Usage (hrs)	VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5
Back hoe	Utility Removal	2	Diesel	84		8	60	960	0.61	10.3	0.81	108.45	1831.15	144.00
Skidsteer Loader	Loading of debris	2	Diesel	50		8	60	960	0.61	10.3	0.81	64.55	1089.97	85.72
Chop Saw	Cut Utilities	1	Gasoline	2		2	60	120	526.3	0.9	3.6	278.47	0.48	1.90
Hydraulic Excavator	Trench Excavation	2	Diesel	250		8	60	960	0.54	9	0.58	285.72	4762.01	306.89
Ditch Witch	Silt Fence Installation	1	Gasoline	25		8	15	120	526.3	0.9	3.6	3480.90	5.95	23.81
Total												4218.09	7689.56	562.32

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	7	Gasoline	2	30	60	25200	0.544	0.593	0.42	30.22	32.95	23.33
Trucks	Pull & deliver construction equipment	6	Diesel	2	30	8	2880	0.6	1.18	0.42	3.81	7.49	2.67
Site Pick-Up	On-site transport of crew and equipment	4	Gasoline	5	2	60	2400	0.544	0.593	0.42	2.88	3.14	2.22
Trucks	Deliver and Haul Roll Offs	1	Diesel	1	30	10	300	0.6	1.18	0.42	0.40	0.78	0.28
Dump Truck	Transfer material on site	2	Diesel	5	2	40	800	2.1	6.49	0.42	3.70	11.45	0.74
Total											41.01	55.80	29.24

Table 7
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - MPPEH Remediation

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage		Annual Usage (hrs)	Emission Factor			Emissions (lb)		
						(hrs/day)	Days Used		VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5
Back hoe	Site access	1	Diesel	84		8	50	400	0.61	10.3	0.81	45.19	762.98	60.00
Skidsteer Loader	Loading of debris	2	Diesel	50		8	100	1600	0.61	10.3	0.81	107.59	1816.62	142.86
Aerial Lift	Access	1	Diesel	43		2	25	50	1.57	14		7.44	66.36	4.74
											Total	160.21	2645.96	207.60

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	8	Gasoline	2	30	100	48000	0.544	0.593	0.42	57.57	62.75	44.45
Trucks	Pull & deliver construction equipment	3	Diesel	2	30	4	720	0.6	1.18	0.42	0.95	1.87	0.67
Site Pick-Up	On-site transport of crew and equipment	4	Gasoline	5	2	100	4000	0.544	0.593	0.42	4.80	5.23	3.70
Dump Truck	Transfer material on site	1	Diesel	5	2	100	1000	2.1	6.49	0.42	4.63	14.31	0.93
										Total	67.95	84.16	49.74

Table 8
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates -Building Burn In Place

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage		Annual Usage (hrs)	Emission Factor			Emissions (lb)		
						(hrs/day)	Days Used		VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5
Back hoe	Loading of Dunnage	1	Diesel	84		8	30	240	0.61	10.3	0.81	27.11	457.79	36.00
Skidsteer Loader	Loading of Dunnage	1	Diesel	50		8	30	240	0.61	10.3	0.81	16.14	272.49	21.43
Ditch Witch	Silt Fence Installation	1	Gasoline	25		8	5	40	526.3	0.9	3.6	1160.30	1.98	7.94
Wheeled Loader	Debris loadout	1	Diesel	200		8	30	240	0.61	10.3	0.81	64.55	1089.97	85.72
											Total	1268.10	1822.24	151.08

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	7	Gasoline	2	30	40	16800	0.544	0.593	0.42	20.15	21.96	15.56
Trucks	Pull & deliver construction equipment	4	Diesel	2	30	2	480	0.6	1.18	0.42	0.63	1.25	0.44
Site Pick-Up	On-site transport of crew and equipment	3	Gasoline	5	2	60	1800	0.544	0.593	0.42	2.16	2.35	1.67
Dump Truck	Transfer material on site	2	Diesel	5	2	40	800	2.1	6.49	0.42	3.70	11.45	0.74
										Total	26.65	37.01	18.41

Table 9
Remediation and/or Demolition of 104 Buildings
Estimated Air Emissions Justifying Record of Non-Applicability (RONA)

Equipment Usage Emission Estimates - Building Demolition

Equipment Type	Use	Number of Units	Fuel Type	Equipment Rating (hp)	Load Factor	Per Unit Usage		Annual Usage			Emission Factor			Emissions (lb)		
						(hrs/day)	Days Used	(hrs)	VOC (g/hp/hr)	NOx (g/hp/hr)	PM2.5 (g/hp/hr)	VOC	NOx	PM2.5		
Back hoe	Demolition and Hauling	3	Diesel	84		8	180	4320	0.61	10.3	0.81	488.01	8240.18	648.01		
Skidsteer Loader	Hauling	2	Diesel	50		8	180	2880	0.61	10.3	0.81	193.66	3269.91	257.15		
Ditch Witch	Silt Fence Installation	1	Gasoline	25		8	20	160	526.3	0.9	3.6	4641.20	7.94	31.75		
Loader	Hauling	2	Diesel	200		8	180	2880	0.61	10.3	0.81	774.62	13079.65	1028.59		
Dozer	Slab removal and grading	1	Diesel	200		8	25	200	0.54	9	0.58	47.62	793.67	51.15		
Vibratory Soil Compactor	Site Restoration	1	Diesel	150		8	25	200	0.8	9.3	0.75	52.91	615.09	49.60		
Crane	Demolition	1	Diesel	250		8	5	40	1.26	10.3	0.96	27.78	227.08	21.16		
Hydraulic Excavator	Demolition	3	Diesel	250		8	180	4320	0.54	9	0.58	1285.74	21429.04	1380.98		
											Total	7511.53	47662.57	3468.40		

Equipment Type	Use	Number of Units	Fuel Type	Trips/Day	Miles/Trip	Days Used	Total Miles Driven	Emission Factor			Emissions (lb)		
								VOC (g/mile)	NOx (g/mile)	PM2.5 (g/mile)	VOC	NOx	PM2.5
Privately Owned Vehicles	Employees commute to work	15	Gasoline	2	30	180	162000	0.544	0.593	0.42	194.29	211.79	150.00
Trucks	Pull & deliver construction equipment	13	Diesel	2	30	2	1560	0.6	1.18	0.42	2.06	4.06	1.44
Site Pick-Up	On-site transport of crew and equipment	6	Gasoline	5	2	60	3600	0.544	0.593	0.42	4.32	4.71	3.33
Dump Truck	Transfer material on site	4	Diesel	5	2	40	1600	2.1	6.49	0.42	7.41	22.89	1.48
Truck for Roll Off	Disposal of Building Debris	1	Diesel	2	30	180	10800	2.1	6.49	0.42	50.00	154.53	10.00
Tri-axle Dump Trucks	Disposal of Building Debris	1	Diesel	5	30	180	27000	2.1	6.49	0.42	125.00	386.32	25.00
										Total	383.08	784.29	191.26

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 210

HHV Fuel Oil 140,000 BTU/gal
5% Fuel Oil 0.05 %

Scenario:
All of fuel oil is combusted in half an hour Quantity of fuel oil combusted: 200 gallons
Wood is combusted for next half an hour Total wood combusted in burn: 761,805 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn: 200 gallons
Total wood combusted in burn: 253935.00 lbs

Hour 2:
Total fuel oil combusted in burn: 0 gallons
Total wood combusted in burn: 507870.00 lbs

Pollutant	Fuel Oil ¹			Wood ²		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0.05	30.6	3885.21	3885.26	3885.26	489.53
NOx	20	--	.4	2.8	355.51	359.51	359.51	45.30
VOC	0.2	--	0.04	53	6729.28	6729.32	6729.32	847.88

References:
1. AP-42, Chapter 1.3
2. AP-42, Chapter 1.10

Pollutant	Fuel Oil ¹			Wood ²		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0	30.6	7770.41	7770.41	7770.41	979.05
NOx	20	--	0	2.8	711.02	711.02	711.02	89.59
VOC	0.2	--	0	53	13458.56	13458.56	13458.56	1695.74

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 408

HHV Fuel Oil 140,000 BTU/gal
5% Fuel Oil 0.05 %

Scenario:
All of fuel oil is combusted in half an hour
Wood is combusted for next half an hour
Quantity of fuel oil combusted: 100 gallons
Total wood combusted in burn: 85,821 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn: 100 gallons
Total wood combusted in burn: 28606.88 lbs

Hour 2:
Total fuel oil combusted in burn: 0 gallons
Total wood combusted in burn: 57213.75 lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0.025	30.6	437.69	437.71	437.71	55.15
NOx	20	--	2	2.8	40.05	42.05	42.05	5.30
VOC	0.2	--	0.02	53	758.08	758.10	758.10	95.52

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0	30.6	875.37	875.37	875.37	110.29
NOx	20	--	0	2.8	80.10	80.10	80.10	10.09
VOC	0.2	--	0	53	1516.16	1516.16	1516.16	191.03

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1362

HHV Fuel Oil 140,000 BTU/gal
5% Fuel Oil 0.05 %

Scenario:
All of fuel oil is combusted in half an hour
Wood is combusted for next half an hour
Quantity of fuel oil combusted: 75 gallons
Total wood combusted in burn: 22,337 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn: 75 gallons
Total wood combusted in burn: 7445.63 lbs

Hour 2:
Total fuel oil combusted in burn: 0 gallons
Total wood combusted in burn: 14891.25 lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0.01875	30.6	113.92	113.94	113.94	14.36
NOx	20	--	1.5	2.8	10.42	11.92	11.92	1.50
VOC	0.2	--	0.015	53	197.31	197.32	197.32	24.86

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0	30.6	227.84	227.84	227.84	28.71
NOx	20	--	0	2.8	20.85	20.85	20.85	2.63
VOC	0.2	--	0	53	394.62	394.62	394.62	49.72

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1363

HHV Fuel Oil 140,000 BTU/gal
5% Fuel Oil 0.05 %

Scenario:

All of fuel oil is combusted in half an hour
Wood is combusted for next half an hour

Quantity of fuel oil combusted: 75 gallons
Total wood combusted in burn: 40,112 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn: 75 gallons
Total wood combusted in burn: 13370.78 lbs

Hour 2:
Total fuel oil combusted in burn: 0 gallons
Total wood combusted in burn: 26741.55 lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0.01875	30.6	204.57	204.59	204.59	25.78
NOx	20	--	1.5	2.8	18.72	20.22	20.22	2.55
VOC	0.2	--	0.015	53	354.33	354.34	354.34	44.65

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0	30.6	409.15	409.15	409.15	51.55
NOx	20	--	0	2.8	37.44	37.44	37.44	4.72
VOC	0.2	--	0	53	708.65	708.65	708.65	89.29

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1373

HHV Fuel Oil 140,000 BTU/gal
5% Fuel Oil 0.05 %

Scenario:
All of fuel oil is combusted in half an hour
Wood is combusted for next half an hour
Quantity of fuel oil combusted: 100 gallons
Total wood combusted in burn: 131,905 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn: 100 gallons
Total wood combusted in burn: 43968.38 lbs

Hour 2:
Total fuel oil combusted in burn: 0 gallons
Total wood combusted in burn: 87936.75 lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0.025	30.6	672.72	672.74	672.74	84.76
NOx	20	--	2	2.8	61.56	63.56	63.56	8.01
VOC	0.2	--	0.02	53	1165.16	1165.18	1165.18	146.81

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
PM2.5	0.25	--	0	30.6	1345.43	1345.43	1345.43	169.52
NOx	20	--	0	2.8	123.11	123.11	123.11	15.51
VOC	0.2	--	0	53	2330.32	2330.32	2330.32	293.61

Estimate of Picatinny NEW for Recod of Non-Applicability		
Square feet of floor space in significant buildings	47838	Derived from Real Property Data
Linear Feet of Cracks (assuming 10 linear feet per 100 sq ft of floor space)	4783.8	Estimate taken from Badger Experience
Feet of 80 Grain Det Cord (assuming 1 foot per foot of crack)	4783.8	Estimate taken from Badger Experience
# of 25 Gram Jet Perforators (assuming 1 per foot)	4783.8	Estimate taken from Badger Experience
Weight of Donor Explosive from perforators (lbs) RDX	263.707	250 grams per perforator - 0.002205 lbs per gram
Weight of Donor Explosive from det cord (lbs) Pentaerythritol tetranitrate (PETN)	54.672	80 grains per foot and 7000 grains per pound
Weight of Explosive Contaminate (assuming 0.5 lbs per foot of crack) (lbs) assume TNT	2391.9	
Net Explosive Weight for all significant Buildings (lbs)	2710.279	

Explosive	Estimated NEW (lb)	Pollutant	Emission Factor		Calculated Emissions	
			(lb/lb NEW)	Reference	(lbs)	(tons)
RDX	263.71	NOx	6.00E-04	OBODM Fuel Database	1.58E-01	7.91E-05
		PM2.5	No Data		--	--
		TNMHC	1.30E-03	OBODM Fuel Database	3.43E-01	1.71E-04
PETN	54.67	NOx	7.00E-03	AP-42 Table 15.9.15-1, Draft July 2009	3.83E-01	1.91E-04
		PM2.5	1.10E-02	AP-42 Table 15.9.15-1, Draft July 2009	6.01E-01	3.01E-04
		TNMHC	1.50E-02	AP-42 Table 15.9.15-1, Draft July 2009	8.20E-01	4.10E-04
TNT	2391.9	NOx	7.60E-04	OBODM Fuel Database	1.82E+00	9.09E-04
		PM2.5	9.30E-02	PM10 factor, OBODM Fuel Database	2.22E+02	1.11E-01
		TNMHC	4.00E-05	OBODM Fuel Database	9.57E-02	4.78E-05
TOTAL:		NOx			2.36E+00	1.18E-03
		PM2.5			2.23E+02	1.12E-01
		TNMHC			1.26E+00	6.29E-04

APPENDIX D

**PROGRAMMATIC AGREEMENT AMONG UNITED STATES ARMY
GARRISON PICATINNY ARSENAL, NEW JERSEY HISTORIC
PRESERVATION OFFICE, AND THE ADVISORY COUNCIL ON
HISTORIC PRESERVATION FOR UNDERTAKINGS OF THE REAL
PROPERTY MASTER PLAN FOR PICATINNY ARSENAL, NEW JERSEY**

**AMENDMENT TO THE
PROGRAMMATIC AGREEMENT
AMONG
UNITED STATES ARMY GARRISON PICATINNY ARSENAL,
NEW JERSEY STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION FOR
UNDERTAKINGS OF THE REAL PROPERTY MASTER PLAN FOR
PICATINNY ARSENAL, NEW JERSEY**

WHEREAS, the Agreement was executed on May 17, 2010 and amended on March 10, 2011;

WHEREAS, United States Army Garrison, Picatinny Arsenal, Morris County, New Jersey (USAG Picatinny) has determined the need to amend this Agreement as two (2) additional structures have been proven to be of an unsafe and/or explosively-contaminated nature, similar to other facilities discussed during the consultation phase of the Agreement (Revised Attachment B, Facility Reduction Program [FRP] Structure Demolition List and Revised Attachment C, Real Property Master Plan [RPMP] Project Maps- only affected maps are attached below). These facilities have been given the approval of funds under the Defense Environmental Restoration Program (DERP) for demolition; and

WHEREAS, USAG Picatinny has determined the need to demolish and replace Water Tanks 75, 75A, 623, 623A, 623B, 623C, 623D, and 623E for the 600 Area Water Mainline Extension (discussed during the initial consultation phase of the Agreement [original Agreement Attachment A, RPMP Project List]). After further consultation, USAG Picatinny, SHPO, and the ACHP agreed during a conference call held on October 14, 2011 that these water tank replacements would not be categorized as a major project addition as no historic properties would be adversely affected by the undertaking. This was formally recognized by SHPO on October 27, 2011 with USAG Picatinny's concurrence on November 4, 2011;

NOW THEREFORE, in accordance with Stipulations XII of the Agreement, USAG Picatinny, SHPO, and the ACHP agree to amend the Agreement as follows:

1. Amend Stipulation I(D)(ii) so it reads as follows:

USAG Picatinny shall ensure that no NRHP-eligible historic properties will be demolished until this Stipulation is complete, with the exception of Buildings 154 and 168 within the Administration and Research Historic District, Buildings 617D and 617E within the 600 Ordnance Testing Area Historic District, and Buildings 3617 and 3618 within the NARTS Test Area E Historic District (Attachment B).

- a) decontamination and (potential) final demolition of historic properties can proceed after all exterior and interior documentation has been performed and an assessment of the documentation has been visually shown to the Interested Parties through a web-conference call or onsite meeting (if needed).

**AMENDMENT TO THE
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NEW JERSEY STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION FOR
UNDERTAKINGS OF THE REAL PROPERTY MASTER PLAN FOR
PICATINNY ARSENAL, NEW JERSEY**

U.S. ARMY GARRISON, PICATINNY ARSENAL

BY: _____

Herb Koehler

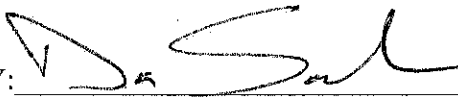
DATE: _____

11-22-11

Herb Koehler
Lieutenant Colonel, U.S. Army
Garrison Commander

**AMENDMENT TO THE
PROGRAMMATIC AGREEMENT
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UNDERTAKINGS OF THE REAL PROPERTY MASTER PLAN FOR
PICATINNY ARSENAL, NEW JERSEY**

NEW JERSEY STATE HISTORIC PRESERVATION OFFICER

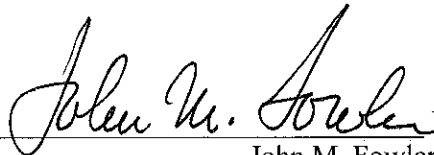
BY:  DATE: 12/5/2011

Daniel Saunders
Deputy State Historic Preservation Officer
New Jersey Historic Preservation Office

**AMENDMENT TO THE
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UNITED STATES ARMY GARRISON PICATINNY ARSENAL,
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UNDERTAKINGS OF THE REAL PROPERTY MASTER PLAN FOR
PICATINNY ARSENAL, NEW JERSEY**

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY:



DATE:

12/15/4

John M. Fowler
Executive Director

APPENDIX E
METHODOLOGY FOR PICATINNY MODELING (AIR DISPERSION
MODELING FOR BUILDINGS TO BE POTENTIALLY
DECONTAMINATED BY FIRE)

Air quality impact analysis was conducted for the burning of buildings at the Picatinny Arsenal as part of the remediation of 104 buildings. The buildings considered potentially for open burning were: Building 210; Building 408; Building 1362; Building 1363; and Building 1373. This document provides the description of the methodology used for the analysis.

Description of the Building Burning In Process:

Burning-in-place remediation would follow the procedures outlined in Section 1.5.C.01 of EM 385-1-97, Building and Installed Equipment Containing Explosives Residues that Present Explosion Hazards. The buildings will be prepared for burning in place by removing asbestos containing material (ACM) and all paints containing levels of PCBs in excess of 50 ppm. Wood pallets as dunnage would be used for burning these buildings at a required temperature needed to decompose, detonate, and burn the residue. Wood doors associated with the building would be removed and placed inside the building for added fuel, provided they do not contain regulated or hazardous materials. Wood used for fuel would be untreated. Wood would be stacked half-way to the ceiling. A maximum of 200 gallons of No. 2 fuel oil (diesel fuel) would be placed in plastic containers located strategically inside the buildings. Diesel fuel would also be lightly applied to the dunnage/wood on the day of the burn to augment the temperatures within the buildings to ensure the success of the thermal decomposition operations. All doors and windows and the roof will be removed to create draft of combustion air and exhausting of the products of combustion.

Based on previous burn data, it was assumed that the burning will occur for two hours. In the first hour, all of the diesel fuel and one third of the wood will be combusted and in the second hour, all of the balance wood will be combusted. Emissions will occur from combustion of diesel fuel and wood only as explosives or paints within the building are assumed to be negligible after pre-treatment.

Conditions to allow the burn to occur would include winds between 3 miles and 17 miles per hour (mph) and clear to partly sunny skies with a cloud deck greater than 1,000 ft. Burning would only occur during daylight hours and would not occur after 1400 hours.

Regulated Pollutants Considered in Analysis:

The air quality impact analysis considered all criteria pollutants for which the area surrounding the Picatinny Arsenal is in attainment status for National Ambient Air Quality Standards (NAAQS) under the federal Clean Air Act. These are: carbon monoxide (CO); Nitrogen dioxide (NO₂); and lead (Pb). Total suspended particulate (TSP) was also considered because it is regulated under the New Jersey Ambient Air Quality Standard (NJAAQS). Currently, there is no NAAQS for TSP.

Health risk from potential emissions of hazardous air pollutants (HAPs) was also evaluated using New Jersey Department of Environmental Protection (NJDEP)'s risk screening methodology. The HAPs expected to be emitted from combustion of wood and diesel oil and which have NJDEP risk screening thresholds (i.e. reference air concentrations of RfCs) were also considered. These HAPs are: i) arsenic; ii) formaldehyde; iii) methyl ethyl ketone; iv) nickel; v) o-xylene; vi) manganese; vii) lead; viii) beryllium; ix) cadmium; x) furfural; xi) mercury; xii) naphthalene; and xiii) selenium.

Emission Source Parameters:

All of the buildings were considered as stationary point sources of emissions and the source parameters were obtained as follows:

Stack height: The building height was considered as the stack height.

Stack diameter: The equivalent stack diameter was determined from the area of the building. In other words, the diameter of the stack was calculated such that the stack area will be same as the building area.

Stack gas velocity: A conservative estimate of 1 meter per second (m/s) was considered for the combustion gases exiting at the building roof level.

Stack gas temperature: Based on data from previous burns, a gas temperature of 1880 °F was considered.

Emission Factors and Emission Rates:

As mentioned above, it was assumed that the combustion occurred in 2 hours as follows:

Hour 1: All of fuel oil is combusted within 30 minutes of the hour to initiate ignition of the wood. Combustion of wood combustion starts after 30 minutes and continues to the end of first hour. Thus, the emissions will be from all of fuel oil and 1/3rd of all the wood in the buildings.

Hour 2: Combustion of wood continues and is completed at the end of the hour. The emissions will be from 2/3rd of all wood in the buildings.

The emission factors for fuel oil and wood combustion were obtained from USEPA's AP-42 Chapter 1.3 and Chapter 1.10, respectively. A combined emission rate for the fuel oil and wood combustion was calculated by determining the fuel oil and wood emissions in lbs shown in the following equations:

Fuel Oil Combustion:

$$FO \text{ Emissions } lbs = FO \text{ EF } \frac{lb}{1000gallons} * FO \text{ Combusted in Burn}(Gallons)$$

OR

$$\begin{aligned} FO \text{ Emissions } lbs \\ = FO \text{ EF } \frac{lb}{10^6MMBTU} * FO \text{ Combusted in Burn } Gallons \\ * HHV \text{ FO } \left(\frac{BTU}{gal} \right) \end{aligned}$$

Wood Combustion:

$$Wood \text{ Emissions } lbs = Wood \text{ EF } \frac{lb}{tons} * Wood \text{ Combusted } lbs * \frac{ton}{2000lbs}$$

The total emissions were calculated and the emission factor was determined in g/s. The results of the emission rate calculations are shown in Attachment to this appendix.

Air Dispersion Model:

USEPA's AERMOD version 11103 was used for the analysis. AERMOD is an approved model for regulatory purposes and appropriate for various types of industrial emission sources. The model uses atmospheric turbulence theory to simulate dispersion of plumes in the convective boundary layer and is suitable for variety of emission sources and for both simple and elevated receptors down to 50 kilometers from the emission sources modeled.

Meteorological Data:

Meteorological data from Newark Airport for 2006 through 2010 was used in the modeling. The data was processed for use in AERMOD. The same data set is being used for the OB/OD/ CD modeling at the Picatinny Arsenal.

The OB permit of the Picatinny Arsenal has following restrictions for the open burn, which were considered in the air quality impact analysis:

- Burning will only take place during daylight hours. As a conservative assumption, the burning was considered to start not before 7 AM;
- Burning could not start after 1400 hours; and

- Burning could occur only when wind speeds were between 3 miles per hours (mph) and 17 mph.

These restrictions were considered in the analysis by inserting a zero emission rate during these hours.

Receptors:

Ambient impact of criteria pollutant emissions were evaluated at receptors placed at the fence line and locations down to 1 kilometer (km) from the fence line in all directions. For the risk screening of HAPs, additional receptors were placed at several selected sensitive locations on-site. The sensitive on-site receptors were:

- Child Development Center Receptor Location (Buffington Road)
- Child Development Center Receptor Location (Northeast)
- Modeled Off-Site Residential Receptor Location for EWI
- Proposed "Combined" On-Site Office Workers Receptor Location
- Proposed "Combined" Residential Receptor Location
- Proposed Off-Site Residential Receptor Location for CDC & BG
- Proposed Off-Site Residential Receptor Location for ODA

A layout of these receptors is shown in Figures 1 and 2 attached.

Processing of Air Dispersion Modeling Results:

Due to the significant number of pollutants being modeled, AERMOD was run using a unit emission rate (1 g/s). The estimated impact for each pollutant was then determined by proportioning with actual estimated emission rate of the pollutant.

Thus, to calculate the actual concentration at the specific emission rate the following equation was used for each pollutant:

$$Actual\ Conc\ \frac{\mu g}{m^3} = Actual\ Emission\ Rate\ \frac{g}{s} * Modeled\ Conc.\ at\ 1\ \frac{g}{s}\ (\frac{\mu g}{m^3})$$

AERMOD was run using concatenated met data for the years 2006 – 2010. The top five concentrations were determined for each building for 1-hr and 2-hr averaging periods. Limitations were set so the results only occurred during daylight hours (from 7 am to 2 pm). The windspeed was then determined for each of the top five results. The highest result for each building in which the windspeed was between 3 mph and 17 mph was used.

1-hr Averaging Period Calculations

The results for the 1-hr averaging period were determined by calculating the concentration for Hour 1 and Hour 2. The maximum concentration of Hour 1 and Hour 2 was used to compare with NAAQS or the NJ Inhalation Exposure Limit. This was calculated for each building separately and the maximum impact from all buildings was compared with the appropriate NAAQS/NJAAQS and NJDEP inhalation exposure limits.

8-hr Averaging Period

Only one building will be burning in any 8-hour period. Also, over that 8-hour period covering the burn, only two hours of impact was possible because the burn will be completed in 2 hours. Therefore, the results for the 8-hr averaging period were determined by estimating the maximum impact for 2-hr averaging time (i.e. for Hour 1 and 2) and dividing by 8 hours. This was calculated for each building separately and the maximum impact from all buildings was compared with the appropriate NAAQS/NJAAQS and NJDEP inhalation exposure limits.

24-hr Averaging Period

Only one building will be burning in any 8-hour period. Also, over that 24-hour period covering the burn, only two hours of impact was possible because the burn will be completed in 2 hours. Therefore, the results for the 24-hr averaging period were determined by estimating the maximum impact for 2-hr averaging time (i.e. for Hour 1 and 2) and dividing by 24 hours. This was calculated for each building separately and the maximum impact from all buildings was compared with the appropriate NAAQS/NJAAQS and NJDEP inhalation exposure limits.

3-month Rolling Averaging Period

All five buildings could be burned during the 3 month period. Thus, there will be a cumulative impact from all buildings within this averaging period. Therefore, the results for the 24-hr averaging period were determined by estimating the maximum impact for 2-hr averaging time (i.e. for Hour 1 and 2) and dividing by 3 months (2160) hours. This was calculated for each building separately and the cumulative impact was calculated by adding the maximum 3-month rolling average concentration from all five buildings. This cumulative impact was then compared with NAAQS/NJAAQSW and NJDEP inhalation exposure limits.

Annual Averaging Period

All five buildings could be burned during one year. Thus, there will be a cumulative impact from all buildings within this averaging period.

Therefore, the results for the 24-hr averaging period were determined by estimating the maximum impact for 2-hr averaging time (i.e. for Hour 1 and 2) and dividing by 12 months (8760) hours. This was calculated for each building separately and the cumulative impact was calculated by adding the maximum annual average concentration from all five buildings. This cumulative impact was then compared with NAAQS/NJAAQSW and NJDEP inhalation exposure limits.

Summary Results of Air Quality Impact Analysis:

Detailed results for the air quality impact analysis for each building are in Attachment to this appendix. Tables E-1 and E-2 shows the summary of results for the analysis. Figures 1 and 2 also show the locations of maximum 1-hour average impact and combined 2-hour average impact. As explained above, the combined 2-hour average concentration as used to estimate 8-hour, 24-hour, 3-month, and annual averages.

The tables indicate that the burning in place of the five buildings will not cause any exceedance of the NAAQS/NJAAQS and will not cause any adverse health impact from potential emission of HAPs.

Table E-1
Evaluation of Ambient Impact - NAAQS/NJAAQS

Attainment Criteria Pollutant	Averaging Period	Predicted Max Impact (ug/m3)	Impact from Building No.	NAAQS/NJAAQS (ug/m3)	% of NAAQS
CO	1-hour	13,279	210	40,000	33.20%
CO	8-hour	1,358.9	210	10,000	13.59%
NO ₂	Annual	0.04	Cumulative impact from all buildings	100	0.04%
Total Suspended Particulates (TSP)	24-hour	60.06	210	260	23.1%
Total Suspended Particulates (TSP)	Annual	0.42	Cumulative impact from all buildings	75	0.55%
Lead (Pb)	3-month average	1.42E-07	Cumulative impact from all buildings	0.15	Negligible

Notes:

- 1: Predicted impacts are based on 5-years of hourly meteorological data (2006-2010) from Newark Airport.
- 2: 1-hour SO₂ and 1-hour NO₂ NAAQS were not included in the analysis due to statistical format of these standards which are not appropriate for one-time events.
- 3: TSP does not have any NAAQS; the values shown are for New Jersey ambient air quality standard (NJAAQS)

Table E-2
Evaluation of Ambient Impact - HAPs

HAPs	Averaging Period	NJ Inhalation Exposure (ug/m3)	Predicted Max Impact (ug/m3)	% of NJ Inhalation Exposure
Arsenic	1-hr	0.2	8.39E-05	0.04%
Formaldehyde	1-hr	55	9.14E-03	0.02%
Methyl Ethyl Ketone	1-hr	13000	16.69	0.13%
Nickel	1-hr	6	8.05E-04	0.01%
o-Xylene	1-hr	22000	11.62	0.05%
Manganese	8-hr	0.17	1.00E-03	0.59%
Lead	24-hr	0.10	3.96E-06	0.00%
Arsenic	Annual	0.015	1.55E-08	0.00%
Beryllium	Annual	0.02	1.17E-08	0.00%
Cadmium	Annual	0.02	3.10E-07	0.00%
Formaldehyde	Annual	9	1.69E-06	0.00%
Furfural	Annual	50	6.60E-03	0.01%
Manganese	Annual	0.05	2.33E-06	0.00%
Mercury	Annual	0.3	1.17E-08	0.00%
Methyl Ethyl Ketone	Annual	5000	3.94E-03	0.00%
Naphthalene	Annual	3.00	3.91E-03	0.13%
Nickel	Annual	0.05	2.02E-07	0.00%
o-Xylene	Annual	100	2.74E-03	0.00%
Selenium	Annual	20	5.83E-08	0.00%

Notes:

1: Predicted impacts are based on 5-years of hourly meteorological data (2006-2010) from Newark Airport.

2: NJ Inhalation Exposure concentrations were obtained from: "Reference Concentration for Short-term Inhalation Exposure, August 2011: New Jersey Department of Environmental Protection, Division of Air Quality, Bureau of Technical Services, Air Quality Evaluation Section

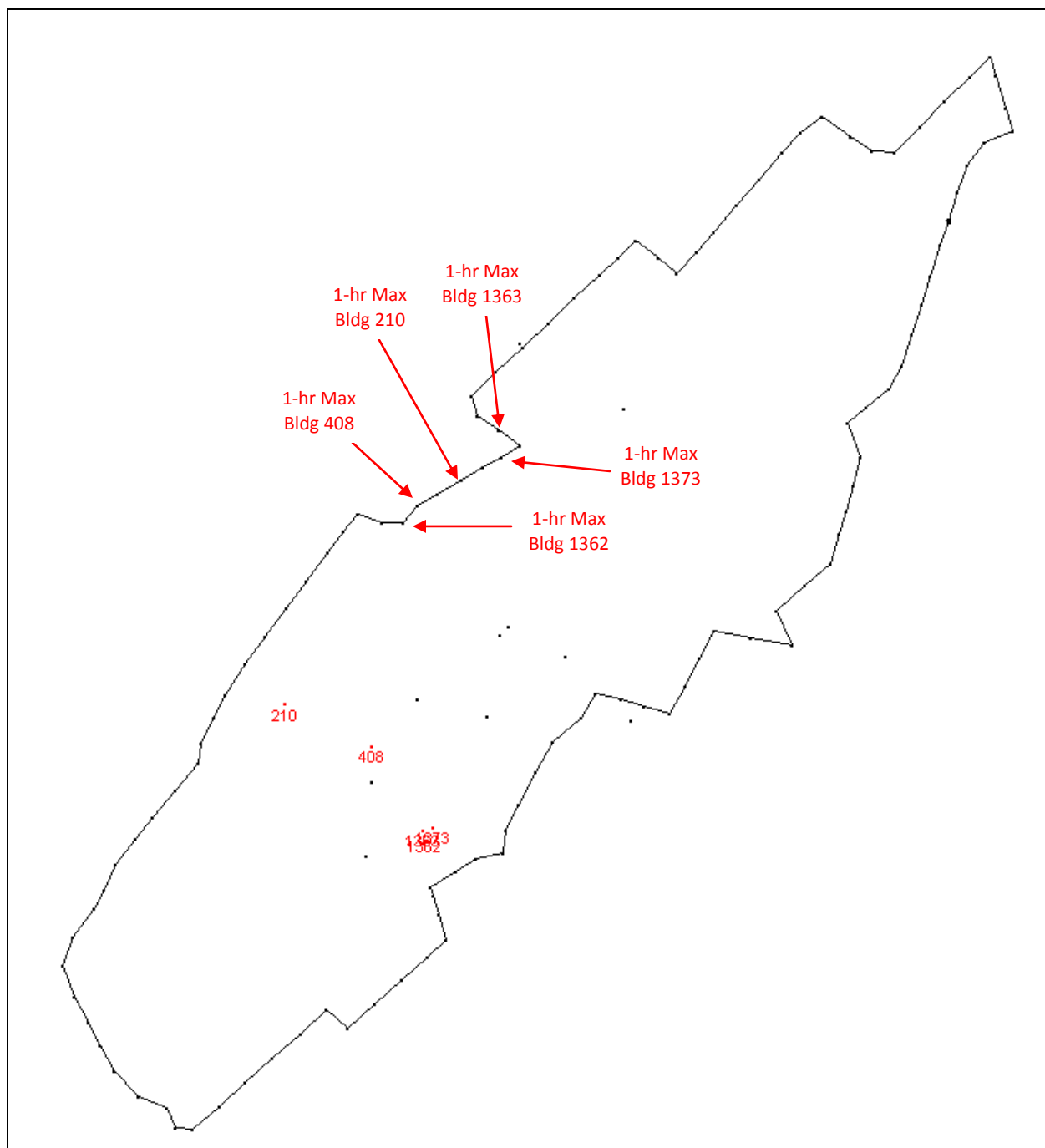


Figure 1
1-hr Maximum Receptor Locations for Air Dispersion Modeling

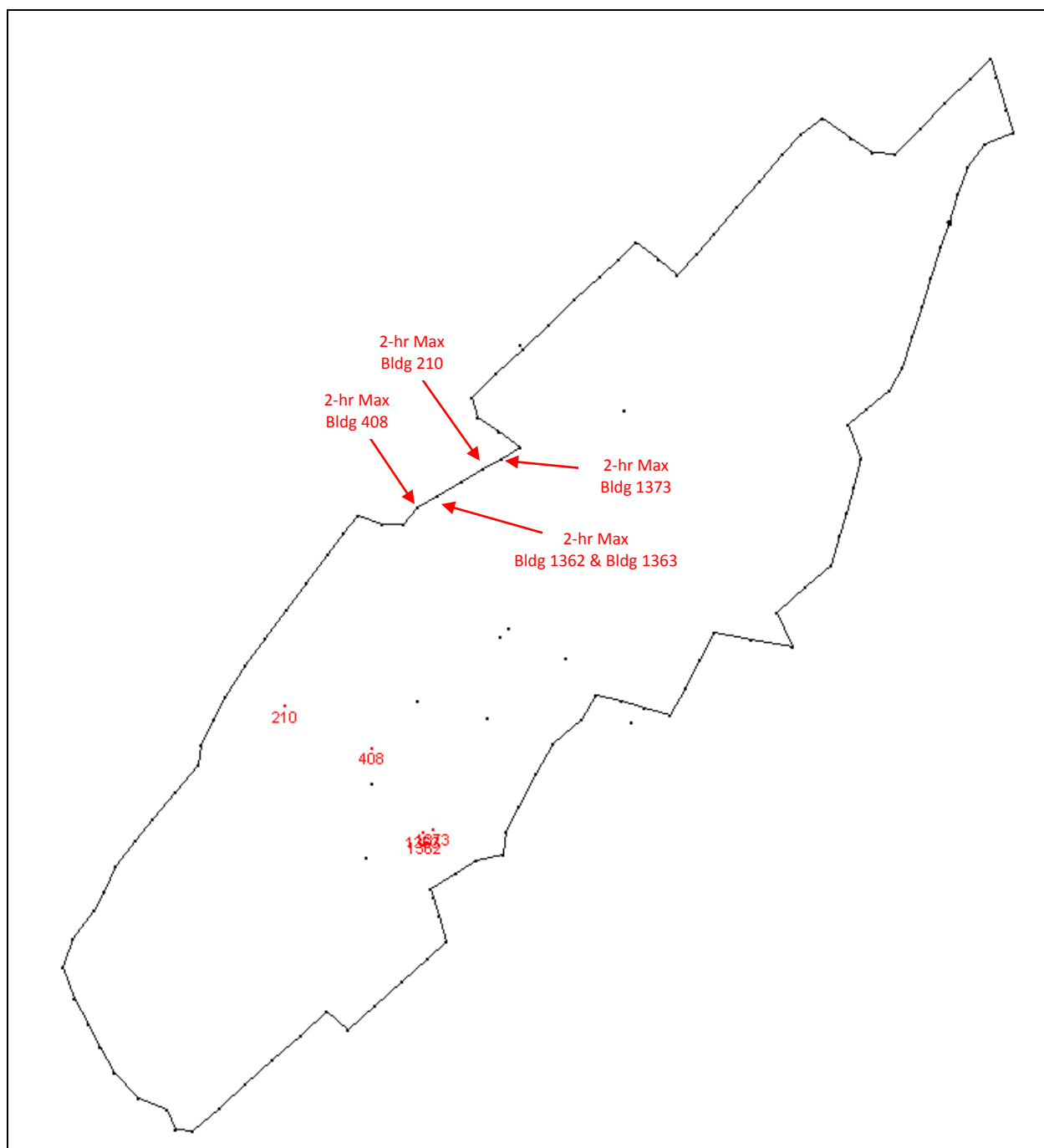


Figure 2
2-hr Maximum Receptor Locations for Air Dispersion Modeling

Attachment 1: AERMOD Model Results and Output

Picatinny Arsenal
Building Burn Modeling
AERMOD Summary Results
Nov-11

1-hr Averaging Period Results									2-hr Averaging Period Results								
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2009	OTHER	1-HR	210	1ST	537823	4534673	9030707	1.79824	2006	OTHER	2-HR	210	1ST	538000	4534800	6013008	0.98146
2008	OTHER	1-HR	408	1ST	538700	4532300	8012407	5.52677	2008	OTHER	2-HR	408	1ST	538700	4532300	8012408	2.76405
2010	OTHER	1-HR	1362	1ST	538700	4532200	1E+07	14.30541	2010	OTHER	2-HR	1362	2ND	538700	4532200	10123008	7.15946
2010	OTHER	1-HR	1363	1ST	538600	4532000	1E+07	15.84851	2010	OTHER	2-HR	1363	1ST	538600	4532000	10123008	7.97263
2010	OTHER	1-HR	1373	1ST	538600	4532000	1E+07	6.3481	2010	OTHER	2-HR	1373	1ST	538600	4532000	10123008	3.20987

Picatinny Arsenal **Note: 24-hr results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 24 hours for each building separately.**

Building Burn Modeling

24-hr Model Results Summary

Nov-11 Picatinny HAPS List

eria Polluta	Bldg 210				Bldg 408				Bldg 1362				Bldg 1363				Bldg 1373			
	24-hr Conc. (ug/m3)	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS	24-hr Conc. (ug/m3)	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS	24-hr Conc. (ug/m3)	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS	24-hr Conc. (ug/m3)	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS	24-hr Conc. (ug/m3)	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS
TSP	60.06	260	No	23.10%	19.06	260	No	7.33%	12.85	260	No	4.94%	25.69	260	No	9.88%	34.01	260	No	13.08%
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NOx	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOx	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*This is for NJ Ambient Air Quality

Picatinny Arsenal

Note: 3-month rolling results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 3 months (2160 hrs) for each building separately.

Building Burn Modeling

3-Month Rolling Model Results Summary

Nov-11

Picatinny HAPS List

eria Polluta	Annual Conc. (ug/m3)								
	Bldg 210	Bldg 408	Bldg 1362	Bldg 1363	Bldg 1373	Total	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA
NOx	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOx	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1.44E-08	2.03E-08	3.95E-08	4.39E-08	2.36E-08	1.42E-07	0.15	No	0.00%

Picatinny Arsenal

Note: Annual results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 8760 hours for all buildings combined.

Building Burn Modeling

Annual Model Results Summary

Nov-11

Picatinny HAPS List

eria Polluta	Annual Conc. (ug/m3)								
	Bldg 210	Bldg 408	Bldg 1362	Bldg 1363	Bldg 1373	Total	NAAQS	Exceed NAAQS? (Y/N)	% of NAAQS
TSP	1.65E-01	5.22E-02	3.52E-02	7.04E-02	9.32E-02	4.16E-01	75.00	No	0.55%
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA
NOx	1.51E-02	4.86E-03	3.37E-03	6.61E-03	8.62E-03	3.86E-02	100.00	No	0.04%
SOx	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA

*This is for NJ Ambient Air Quality

Picatinny Arsenal
Building Burn Modeling
Building Info
Nov-11

Building ID	Building Description	Square Footage (ft2)	Building Dimentions	Pounds of wood (assumes a wood density of 33 lbs/cubic foot)	Gallons of fuel oil
210	Ordnance Facility/major caliber Proj loading plant (Timefuze & delay loading plant)	19,648	Length - 360 Width - 45 Height -15 (this is above ground. The building also has a basement beneath a portion of it)	761,805	200
408	Built in 1920 as a high explosive nitration building. By 1961, it was a general purpose laboratory/Experimental Loading; Chemical Research Lab; Lead Azide Line	6,157	Length - 73 Width - 25 Height - 40	85,821	100
1362	In 1961, nitroglycerin continuous process building.	950	Length - 25 Width - 19 Height - 20 (this is above ground, the building also has a basement under a portion of it)	22,337	75
1363	Built in 1945 as a nitroglycerin neutralization building. Most of the 1300 dates from around 1945-47.	853	Length - 29 Width - 25 Height - 20	40,112	75
1373	Nitroglycerin Weighing and Mixing House	2,831	Length - 165 Width - 17 Height - 15	131,905	100

1,041,980

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 210

HHV Fuel Oil140,000BTU/gal
5% Fuel Oil0.05%

Scenario:
All of fuel oil is combusted in half an hourQuantity of fuel oil combusted:200 gallons
Wood is combusted for next half an hourTotal wood combusted in burn:761,805 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn:200gallons
Total wood combusted in burn:253935.00lbs

Hour 2:
Total fuel oil combusted in burn:0gallons
Total wood combusted in burn:507870.00lbs

Pollutant	Fuel Oil ¹			Wood ²		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	20.57	20.57	20.57	2.59
2-Methyl Furan	--	--	0	0.656	83.29	83.29	83.29	10.49
Acenaphthene	--	--	0	0.01	1.27	1.27	1.27	0.16
Acenaphthylene	--	--	0	0.212	26.92	26.92	26.92	3.39
Acetylene	--	--	0	1.124	142.71	142.71	142.71	17.98
Anthracene	--	--	0	0.014	1.78	1.78	1.78	0.22
Arsenic	--	4.00E-06	0.000112	--	0	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	2.54	2.54	2.54	0.32
Benzo(a)Pyrene	--	--	0	0.004	0.51	0.51	0.51	0.06
Benzo(b)Fluoranthene	--	--	0	0.006	0.76	0.76	0.76	0.10
Benzo(e)Pyrene	--	--	0	0.012	1.52	1.52	1.52	0.19
Benzo(g,h,i)Perylene	--	--	0	0.004	0.51	0.51	0.51	0.06
Benzo(k)Fluoranthene	--	--	0	0.002	0.25	0.25	0.25	0.03
Beryllium	--	3.00E-06	0.000084	--	0	0.00	0.00	0.00
Butene	--	--	0	1.192	151.35	151.35	151.35	19.07
Cadmium	--	3.00E-06	0.000084	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0.000084	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	1.52	1.52	1.52	0.19
Ethane	--	--	0	1.47	186.64	186.64	186.64	23.52
Ethylene	--	--	0	4.49	570.08	570.08	570.08	71.83
Fluoranthene	--	--	0	0.02	2.54	2.54	2.54	0.32
Fluorene	--	--	0	0.024	3.05	3.05	3.05	0.38
Formaldehyde	6.10E-02	--	0.0122	--	0	0.01	0.01	0.00
Furan	--	--	0	0.342	43.42	43.42	43.42	5.47
Furfural	--	--	0	0.486	61.71	61.71	61.71	7.77
i-Butane	--	--	0	0.028	3.56	3.56	3.56	0.45
Lead	--	9.00E-06	0.000252	--	0	0.00	0.00	0.00
Manganese	--	6.00E-06	0.000168	1.70E-04	0.02	0.02	0.02	0.00
Mercury	--	3.00E-06	0.000084	--	0	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	36.82	36.82	36.82	4.64
Naphthalene	3.33E-04	--	0.0000666	0.288	36.57	36.57	36.57	4.61
n-Butane	--	--	0	0.056	7.11	7.11	7.11	0.90
Nickel	--	3.00E-06	0.000084	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	25.65	25.65	25.65	3.23
PAH Total	--	--	0	0.73	92.69	92.69	92.69	11.68
Pentene	--	--	0	0.616	78.21	78.21	78.21	9.85
Phenanthrene	--	--	0	0.078	9.90	9.90	9.90	1.25
Polycyclic Organic Matter	3.30E-03	--	0.00066	--	0	0.00	0.00	0.00
Propane	--	--	0	0.358	45.45	45.45	45.45	5.73
Propene	--	--	0	1.244	157.95	157.95	157.95	19.90
Pyrene	--	--	0	0.024	3.05	3.05	3.05	0.38
Selenium	--	1.50E-05	0.00042	--	0	0.00	0.00	0.00

References:
1. AP-42, Chapter 1.3
2. AP-42, Chapter 1.10

Pollutant	Fuel Oil ¹			Wood ²		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	41.14	41.14	41.14	5.18
2-Methyl Furan	--	--	0	0.656	166.58	166.58	166.58	20.99
Acenaphthene	--	--	0	0.01	2.54	2.54	2.54	0.32
Acenaphthylene	--	--	0	0.212	53.83	53.83	53.83	6.78
Acetylene	--	--	0	1.124	285.42	285.42	285.42	35.96
Anthracene	--	--	0	0.014	3.56	3.56	3.56	0.45
Arsenic	--	4.00E-06	0	--	0.00	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	5.08	5.08	5.08	0.64
Benzo(a)Pyrene	--	--	0	0.004	1.02	1.02	1.02	0.13
Benzo(b)Fluoranthene	--	--	0	0.006	1.52	1.52	1.52	0.19
Benzo(e)Pyrene	--	--	0	0.012	3.05	3.05	3.05	0.38
Benzo(g,h,i)Perylene	--	--	0	0.004	1.02	1.02	1.02	0.13
Benzo(k)Fluoranthene	--	--	0	0.002	0.51	0.51	0.51	0.06
Beryllium	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Butene	--	--	0	1.192	302.69	302.69	302.69	38.14
Cadmium	--	3.00E-06	0	2.20E-05	0.01	0.01	0.01	0.00
Chromium	--	3.00E-06	0	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	3.05	3.05	3.05	0.38
Ethane	--	--	0	1.47	373.28	373.28	373.28	47.03
Ethylene	--	--	0	4.49	1140.17	1140.17	1140.17	143.66
Fluoranthene	--	--	0	0.02	5.08	5.08	5.08	0.64
Fluorene	--	--	0	0.024	6.09	6.09	6.09	0.77
Formaldehyde	6.10E-02	--	0	--	0.00	0.00	0.00	0.00
Furan	--	--	0	0.342	86.85	86.85	86.85	10.94
Furfural	--	--	0	0.486	123.41	123.41	123.41	15.55
i-Butane	--	--	0	0.028	7.11	7.11	7.11	0.90
Lead	--	9.00E-06	0	--	0.00	0.00	0.00	0.00
Manganese	--	6.00E-06	0	1.70E-04	0.04	0.04	0.04	0.01
Mercury	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	73.64	73.64	73.64	9.28
Naphthalene	3.33E-04	--	0	0.288	73.13	73.13	73.13	9.21
n-Butane	--	--	0	0.056	14.22	14.22	14.22	1.79
Nickel	--	3.00E-06	0	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	51.29	51.29	51.29	6.46
PAH Total	--	--	0	0.73	185.37	185.37	185.37	23.36
Pentene	--	--	0	0.616	156.42	156.42	156.42	19.71
Phenanthrene	--	--	0	0.078	19.81	19.81	19.81	2.50
Polycyclic Organic Matter	3.30E-03	--	0	--	0.00	0.00	0.00	0.00
Propane	--	--	0	0.358	90.91	90.91	90.91	11.45
Propene	--	--	0	1.244	315.90	315.90	315.90	39.80
Pyrene	--	--	0	0.024	6.09	6.09	6.09	0.77
Selenium	--	1.50E-05	0	--	0.00	0.00	0.00	0.00

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 408

HHV Fuel Oil140,000BTU/gal
5% Fuel Oil0.05%

Scenario:
All of fuel oil is combusted in half an hourQuantity of fuel oil combusted:100 gallons
Wood is combusted for next half an hourTotal wood combusted in burn:85,821 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn:100gallons
Total wood combusted in burn:28606.88lbs

Hour 2:
Total fuel oil combusted in burn:0gallons
Total wood combusted in burn:57213.75lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	2.32	2.32	2.32	0.29
2-Methyl Furan	--	--	0	0.656	9.38	9.38	9.38	1.18
Acenaphthene	--	--	0	0.01	0.14	0.14	0.14	0.02
Acenaphthylene	--	--	0	0.212	3.03	3.03	3.03	0.38
Acetylene	--	--	0	1.124	16.08	16.08	16.08	2.03
Anthracene	--	--	0	0.014	0.20	0.20	0.20	0.03
Arsenic	--	4.00E-06	0.000056	--	0	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.29	0.29	0.29	0.04
Benzo(a)Pyrene	--	--	0	0.004	0.06	0.06	0.06	0.01
Benzo(b)Fluoranthene	--	--	0	0.006	0.09	0.09	0.09	0.01
Benzo(e)Pyrene	--	--	0	0.012	0.17	0.17	0.17	0.02
Benzo(g,h,i)Perylene	--	--	0	0.004	0.06	0.06	0.06	0.01
Benzo(k)Fluoranthene	--	--	0	0.002	0.03	0.03	0.03	0.00
Beryllium	--	3.00E-06	0.000042	--	0	0.00	0.00	0.00
Butene	--	--	0	1.192	17.05	17.05	17.05	2.15
Cadmium	--	3.00E-06	0.000042	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0.000042	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.17	0.17	0.17	0.02
Ethane	--	--	0	1.47	21.03	21.03	21.03	2.65
Ethylene	--	--	0	4.49	64.22	64.22	64.22	8.09
Fluoranthene	--	--	0	0.02	0.29	0.29	0.29	0.04
Fluorene	--	--	0	0.024	0.34	0.34	0.34	0.04
Formaldehyde	6.10E-02	--	0.0061	--	0	0.01	0.01	0.00
Furan	--	--	0	0.342	4.89	4.89	4.89	0.62
Furfural	--	--	0	0.486	6.95	6.95	6.95	0.88
i-Butane	--	--	0	0.028	0.40	0.40	0.40	0.05
Lead	--	9.00E-06	0.000126	--	0	0.00	0.00	0.00
Manganese	--	6.00E-06	0.000084	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0.000042	--	0	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	4.15	4.15	4.15	0.52
Naphthalene	3.33E-04	--	0.0000333	0.288	4.12	4.12	4.12	0.52
n-Butane	--	--	0	0.056	0.80	0.80	0.80	0.10
Nickel	--	3.00E-06	0.000042	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	2.89	2.89	2.89	0.36
PAH Total	--	--	0	0.73	10.44	10.44	10.44	1.32
Pentene	--	--	0	0.616	8.81	8.81	8.81	1.11
Phenanthrene	--	--	0	0.078	1.12	1.12	1.12	0.14
Polycyclic Organic Matter	3.30E-03	--	0.00033	--	0	0.00	0.00	0.00
Propane	--	--	0	0.358	5.12	5.12	5.12	0.65
Propene	--	--	0	1.244	17.79	17.79	17.79	2.24
Pyrene	--	--	0	0.024	0.34	0.34	0.34	0.04
Selenium	--	1.50E-05	0.00021	--	0	0.00	0.00	0.00

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	4.63	4.63	4.63	0.58
2-Methyl Furan	--	--	0	0.656	18.77	18.77	18.77	2.36
Acenaphthene	--	--	0	0.01	0.29	0.29	0.29	0.04
Acenaphthylene	--	--	0	0.212	6.06	6.06	6.06	0.76
Acetylene	--	--	0	1.124	32.15	32.15	32.15	4.05
Anthracene	--	--	0	0.014	0.40	0.40	0.40	0.05
Arsenic	--	4.00E-06	0	--	0.00	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.57	0.57	0.57	0.07
Benzo(a)Pyrene	--	--	0	0.004	0.11	0.11	0.11	0.01
Benzo(b)Fluoranthene	--	--	0	0.006	0.17	0.17	0.17	0.02
Benzo(e)Pyrene	--	--	0	0.012	0.34	0.34	0.34	0.04
Benzo(g,h,i)Perylene	--	--	0	0.004	0.11	0.11	0.11	0.01
Benzo(k)Fluoranthene	--	--	0	0.002	0.06	0.06	0.06	0.01
Beryllium	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Butene	--	--	0	1.192	34.10	34.10	34.10	4.30
Cadmium	--	3.00E-06	0	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.34	0.34	0.34	0.04
Ethane	--	--	0	1.47	42.05	42.05	42.05	5.30
Ethylene	--	--	0	4.49	128.44	128.44	128.44	16.18
Fluoranthene	--	--	0	0.02	0.57	0.57	0.57	0.07
Fluorene	--	--	0	0.024	0.69	0.69	0.69	0.09
Formaldehyde	6.10E-02	--	0	--	0.00	0.00	0.00	0.00
Furan	--	--	0	0.342	9.78	9.78	9.78	1.23
Furfural	--	--	0	0.486	13.90	13.90	13.90	1.75
i-Butane	--	--	0	0.028	0.80	0.80	0.80	0.10
Lead	--	9.00E-06	0	--	0.00	0.00	0.00	0.00
Manganese	--	6.00E-06	0	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	8.30	8.30	8.30	1.05
Naphthalene	3.33E-04	--	0	0.288	8.24	8.24	8.24	1.04
n-Butane	--	--	0	0.056	1.60	1.60	1.60	0.20
Nickel	--	3.00E-06	0	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	5.78	5.78	5.78	0.73
PAH Total	--	--	0	0.73	20.88	20.88	20.88	2.63
Pentene	--	--	0	0.616	17.62	17.62	17.62	2.22
Phenanthrene	--	--	0	0.078	2.23	2.23	2.23	0.28
Polycyclic Organic Matter	3.30E-03	--	0	--	0.00	0.00	0.00	0.00
Propane	--	--	0	0.358	10.24	10.24	10.24	1.29
Propene	--	--	0	1.244	35.59	35.59	35.59	4.48
Pyrene	--	--	0	0.024	0.69	0.69	0.69	0.09
Selenium	--	1.50E-05	0	--	0.00	0.00	0.00	0.00

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1362

HHV Fuel Oil140,000BTU/gal
5% Fuel Oil0.05%

Scenario:
All of fuel oil is combusted in half an hourQuantity of fuel oil combusted:75 gallons
Wood is combusted for next half an hourTotal wood combusted in burn:22,337 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn:75gallons
Total wood combusted in burn:7445.63lbs

Hour 2:
Total fuel oil combusted in burn:0gallons
Total wood combusted in burn:14891.25lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	0.60	0.60	0.60	0.08
2-Methyl Furan	--	--	0	0.656	2.44	2.44	2.44	0.31
Acenaphthene	--	--	0	0.01	0.04	0.04	0.04	0.00
Acenaphthylene	--	--	0	0.212	0.79	0.79	0.79	0.10
Acetylene	--	--	0	1.124	4.18	4.18	4.18	0.53
Anthracene	--	--	0	0.014	0.05	0.05	0.05	0.01
Arsenic	--	4.00E-06	0.000042	--	0	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.07	0.07	0.07	0.01
Benzo(a)Pyrene	--	--	0	0.004	0.01	0.01	0.01	0.00
Benzo(b)Fluoranthene	--	--	0	0.006	0.02	0.02	0.02	0.00
Benzo(e)Pyrene	--	--	0	0.012	0.04	0.04	0.04	0.01
Benzo(g,h,i)Perylene	--	--	0	0.004	0.01	0.01	0.01	0.00
Benzo(k)Fluoranthene	--	--	0	0.002	0.01	0.01	0.01	0.00
Beryllium	--	3.00E-06	0.0000315	--	0	0.00	0.00	0.00
Butene	--	--	0	1.192	4.44	4.44	4.44	0.56
Cadmium	--	3.00E-06	0.0000315	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0.0000315	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.04	0.04	0.04	0.01
Ethane	--	--	0	1.47	5.47	5.47	5.47	0.69
Ethylene	--	--	0	4.49	16.72	16.72	16.72	2.11
Fluoranthene	--	--	0	0.02	0.07	0.07	0.07	0.01
Fluorene	--	--	0	0.024	0.09	0.09	0.09	0.01
Formaldehyde	6.10E-02	--	0.004575	--	0	0.00	0.00	0.00
Furan	--	--	0	0.342	1.27	1.27	1.27	0.16
Furfural	--	--	0	0.486	1.81	1.81	1.81	0.23
i-Butane	--	--	0	0.028	0.10	0.10	0.10	0.01
Lead	--	9.00E-06	0.0000945	--	0	0.00	0.00	0.00
Manganese	--	6.00E-06	0.000063	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0.0000315	--	0	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	1.08	1.08	1.08	0.14
Naphthalene	3.33E-04	--	2.498E-05	0.288	1.07	1.07	1.07	0.14
n-Butane	--	--	0	0.056	0.21	0.21	0.21	0.03
Nickel	--	3.00E-06	0.0000315	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	0.75	0.75	0.75	0.09
PAH Total	--	--	0	0.73	2.72	2.72	2.72	0.34
Pentene	--	--	0	0.616	2.29	2.29	2.29	0.29
Phenanthrene	--	--	0	0.078	0.29	0.29	0.29	0.04
Polycyclic Organic Matter	3.30E-03	--	0.0002475	--	0	0.00	0.00	0.00
Propane	--	--	0	0.358	1.33	1.33	1.33	0.17
Propene	--	--	0	1.244	4.63	4.63	4.63	0.58
Pyrene	--	--	0	0.024	0.09	0.09	0.09	0.01
Selenium	--	1.50E-05	0.0001575	--	0	0.00	0.00	0.00

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	1.21	1.21	1.21	0.15
2-Methyl Furan	--	--	0	0.656	4.88	4.88	4.88	0.62
Acenaphthene	--	--	0	0.01	0.07	0.07	0.07	0.01
Acenaphthylene	--	--	0	0.212	1.58	1.58	1.58	0.20
Acetylene	--	--	0	1.124	8.37	8.37	8.37	1.05
Anthracene	--	--	0	0.014	0.10	0.10	0.10	0.01
Arsenic	--	4.00E-06	0	--	0.00	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.15	0.15	0.15	0.02
Benzo(a)Pyrene	--	--	0	0.004	0.03	0.03	0.03	0.00
Benzo(b)Fluoranthene	--	--	0	0.006	0.04	0.04	0.04	0.01
Benzo(e)Pyrene	--	--	0	0.012	0.09	0.09	0.09	0.01
Benzo(g,h,i)Perylene	--	--	0	0.004	0.03	0.03	0.03	0.00
Benzo(k)Fluoranthene	--	--	0	0.002	0.01	0.01	0.01	0.00
Beryllium	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Butene	--	--	0	1.192	8.88	8.88	8.88	1.12
Cadmium	--	3.00E-06	0	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.09	0.09	0.09	0.01
Ethane	--	--	0	1.47	10.95	10.95	10.95	1.38
Ethylene	--	--	0	4.49	33.43	33.43	33.43	4.21
Fluoranthene	--	--	0	0.02	0.15	0.15	0.15	0.02
Fluorene	--	--	0	0.024	0.18	0.18	0.18	0.02
Formaldehyde	6.10E-02	--	0	--	0.00	0.00	0.00	0.00
Furan	--	--	0	0.342	2.55	2.55	2.55	0.32
Furfural	--	--	0	0.486	3.62	3.62	3.62	0.46
i-Butane	--	--	0	0.028	0.21	0.21	0.21	0.03
Lead	--	9.00E-06	0	--	0.00	0.00	0.00	0.00
Manganese	--	6.00E-06	0	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	2.16	2.16	2.16	0.27
Naphthalene	3.33E-04	--	0	0.288	2.14	2.14	2.14	0.27
n-Butane	--	--	0	0.056	0.42	0.42	0.42	0.05
Nickel	--	3.00E-06	0	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	1.50	1.50	1.50	0.19
PAH Total	--	--	0	0.73	5.44	5.44	5.44	0.68
Pentene	--	--	0	0.616	4.59	4.59	4.59	0.58
Phenanthrene	--	--	0	0.078	0.58	0.58	0.58	0.07
Polycyclic Organic Matter	3.30E-03	--	0	--	0.00	0.00	0.00	0.00
Propane	--	--	0	0.358	2.67	2.67	2.67	0.34
Propene	--	--	0	1.244	9.26	9.26	9.26	1.17
Pyrene	--	--	0	0.024	0.18	0.18	0.18	0.02
Selenium	--	1.50E-05	0	--	0.00	0.00	0.00	0.00

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1363

HHV Fuel Oil140,000BTU/gal
5% Fuel Oil0.05%

Scenario:
All of fuel oil is combusted in half an hourQuantity of fuel oil combusted:75 gallons
Wood is combusted for next half an hourTotal wood combusted in burn:40,112 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn:75gallons
Total wood combusted in burn:13370.78lbs

Hour 2:
Total fuel oil combusted in burn:0gallons
Total wood combusted in burn:26741.55lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	1.08	1.08	1.08	0.14
2-Methyl Furan	--	--	0	0.656	4.39	4.39	4.39	0.55
Acenaphthene	--	--	0	0.01	0.07	0.07	0.07	0.01
Acenaphthylene	--	--	0	0.212	1.42	1.42	1.42	0.18
Acetylene	--	--	0	1.124	7.51	7.51	7.51	0.95
Anthracene	--	--	0	0.014	0.09	0.09	0.09	0.01
Arsenic	--	4.00E-06	0.000042	--	0	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.13	0.13	0.13	0.02
Benzo(a)Pyrene	--	--	0	0.004	0.03	0.03	0.03	0.00
Benzo(b)Fluoranthene	--	--	0	0.006	0.04	0.04	0.04	0.01
Benzo(e)Pyrene	--	--	0	0.012	0.08	0.08	0.08	0.01
Benzo(g,h,i)Perylene	--	--	0	0.004	0.03	0.03	0.03	0.00
Benzo(k)Fluoranthene	--	--	0	0.002	0.01	0.01	0.01	0.00
Beryllium	--	3.00E-06	0.0000315	--	0	0.00	0.00	0.00
Butene	--	--	0	1.192	7.97	7.97	7.97	1.00
Cadmium	--	3.00E-06	0.0000315	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0.0000315	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.08	0.08	0.08	0.01
Ethane	--	--	0	1.47	9.83	9.83	9.83	1.24
Ethylene	--	--	0	4.49	30.02	30.02	30.02	3.78
Fluoranthene	--	--	0	0.02	0.13	0.13	0.13	0.02
Fluorene	--	--	0	0.024	0.16	0.16	0.16	0.02
Formaldehyde	6.10E-02	--	0.004575	--	0	0.00	0.00	0.00
Furan	--	--	0	0.342	2.29	2.29	2.29	0.29
Furfural	--	--	0	0.486	3.25	3.25	3.25	0.41
i-Butane	--	--	0	0.028	0.19	0.19	0.19	0.02
Lead	--	9.00E-06	0.0000945	--	0	0.00	0.00	0.00
Manganese	--	6.00E-06	0.000063	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0.0000315	--	0	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	1.94	1.94	1.94	0.24
Naphthalene	3.33E-04	--	2.498E-05	0.288	1.93	1.93	1.93	0.24
n-Butane	--	--	0	0.056	0.37	0.37	0.37	0.05
Nickel	--	3.00E-06	0.0000315	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	1.35	1.35	1.35	0.17
PAH Total	--	--	0	0.73	4.88	4.88	4.88	0.61
Pentene	--	--	0	0.616	4.12	4.12	4.12	0.52
Phenanthrene	--	--	0	0.078	0.52	0.52	0.52	0.07
Polycyclic Organic Matter	3.30E-03	--	0.0002475	--	0	0.00	0.00	0.00
Propane	--	--	0	0.358	2.39	2.39	2.39	0.30
Propene	--	--	0	1.244	8.32	8.32	8.32	1.05
Pyrene	--	--	0	0.024	0.16	0.16	0.16	0.02
Selenium	--	1.50E-05	0.0001575	--	0	0.00	0.00	0.00

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	2.17	2.17	2.17	0.27
2-Methyl Furan	--	--	0	0.656	8.77	8.77	8.77	1.11
Acenaphthene	--	--	0	0.01	0.13	0.13	0.13	0.02
Acenaphthylene	--	--	0	0.212	2.83	2.83	2.83	0.36
Acetylene	--	--	0	1.124	15.03	15.03	15.03	1.89
Anthracene	--	--	0	0.014	0.19	0.19	0.19	0.02
Arsenic	--	4.00E-06	0	--	0.00	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.27	0.27	0.27	0.03
Benzo(a)Pyrene	--	--	0	0.004	0.05	0.05	0.05	0.01
Benzo(b)Fluoranthene	--	--	0	0.006	0.08	0.08	0.08	0.01
Benzo(e)Pyrene	--	--	0	0.012	0.16	0.16	0.16	0.02
Benzo(g,h,i)Perylene	--	--	0	0.004	0.05	0.05	0.05	0.01
Benzo(k)Fluoranthene	--	--	0	0.002	0.03	0.03	0.03	0.00
Beryllium	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Butene	--	--	0	1.192	15.94	15.94	15.94	2.01
Cadmium	--	3.00E-06	0	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.16	0.16	0.16	0.02
Ethane	--	--	0	1.47	19.66	19.66	19.66	2.48
Ethylene	--	--	0	4.49	60.03	60.03	60.03	7.56
Fluoranthene	--	--	0	0.02	0.27	0.27	0.27	0.03
Fluorene	--	--	0	0.024	0.32	0.32	0.32	0.04
Formaldehyde	6.10E-02	--	0	--	0.00	0.00	0.00	0.00
Furan	--	--	0	0.342	4.57	4.57	4.57	0.58
Furfural	--	--	0	0.486	6.50	6.50	6.50	0.82
i-Butane	--	--	0	0.028	0.37	0.37	0.37	0.05
Lead	--	9.00E-06	0	--	0.00	0.00	0.00	0.00
Manganese	--	6.00E-06	0	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	3.88	3.88	3.88	0.49
Naphthalene	3.33E-04	--	0	0.288	3.85	3.85	3.85	0.49
n-Butane	--	--	0	0.056	0.75	0.75	0.75	0.09
Nickel	--	3.00E-06	0	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	2.70	2.70	2.70	0.34
PAH Total	--	--	0	0.73	9.76	9.76	9.76	1.23
Pentene	--	--	0	0.616	8.24	8.24	8.24	1.04
Phenanthrene	--	--	0	0.078	1.04	1.04	1.04	0.13
Polycyclic Organic Matter	3.30E-03	--	0	--	0.00	0.00	0.00	0.00
Propane	--	--	0	0.358	4.79	4.79	4.79	0.60
Propene	--	--	0	1.244	16.63	16.63	16.63	2.10
Pyrene	--	--	0	0.024	0.32	0.32	0.32	0.04
Selenium	--	1.50E-05	0	--	0.00	0.00	0.00	0.00

Emission Rate for Hour 1 and 2 of Burn:
Picatinny Arsenal
Building 1373

HHV Fuel Oil140,000BTU/gal
5% Fuel Oil0.05%

Scenario:
All of fuel oil is combusted in half an hourQuantity of fuel oil combusted:100 gallons
Wood is combusted for next half an hourTotal wood combusted in burn:131,905 lbs in 1.5 hours

Hour 1:
Total fuel oil combusted in burn:100gallons
Total wood combusted in burn:43968.38lbs

Hour 2:
Total fuel oil combusted in burn:0gallons
Total wood combusted in burn:87936.75lbs

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	3.56	3.56	3.56	0.45
2-Methyl Furan	--	--	0	0.656	14.42	14.42	14.42	1.82
Acenaphthene	--	--	0	0.01	0.22	0.22	0.22	0.03
Acenaphthylene	--	--	0	0.212	4.66	4.66	4.66	0.59
Acetylene	--	--	0	1.124	24.71	24.71	24.71	3.11
Anthracene	--	--	0	0.014	0.31	0.31	0.31	0.04
Arsenic	--	4.00E-06	0.000056	--	0	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.44	0.44	0.44	0.06
Benzo(a)Pyrene	--	--	0	0.004	0.09	0.09	0.09	0.01
Benzo(b)Fluoranthene	--	--	0	0.006	0.13	0.13	0.13	0.02
Benzo(e)Pyrene	--	--	0	0.012	0.26	0.26	0.26	0.03
Benzo(g,h,i)Perylene	--	--	0	0.004	0.09	0.09	0.09	0.01
Benzo(k)Fluoranthene	--	--	0	0.002	0.04	0.04	0.04	0.01
Beryllium	--	3.00E-06	0.000042	--	0	0.00	0.00	0.00
Butene	--	--	0	1.192	26.21	26.21	26.21	3.30
Cadmium	--	3.00E-06	0.000042	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0.000042	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.26	0.26	0.26	0.03
Ethane	--	--	0	1.47	32.32	32.32	32.32	4.07
Ethylene	--	--	0	4.49	98.71	98.71	98.71	12.44
Fluoranthene	--	--	0	0.02	0.44	0.44	0.44	0.06
Fluorene	--	--	0	0.024	0.53	0.53	0.53	0.07
Formaldehyde	6.10E-02	--	0.0061	--	0	0.01	0.01	0.00
Furan	--	--	0	0.342	7.52	7.52	7.52	0.95
Furfural	--	--	0	0.486	10.68	10.68	10.68	1.35
i-Butane	--	--	0	0.028	0.62	0.62	0.62	0.08
Lead	--	9.00E-06	0.000126	--	0	0.00	0.00	0.00
Manganese	--	6.00E-06	0.000084	1.70E-04	0.00	0.00	0.00	0.00
Mercury	--	3.00E-06	0.000042	--	0	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	6.38	6.38	6.38	0.80
Naphthalene	3.33E-04	--	0.0000333	0.288	6.33	6.33	6.33	0.80
n-Butane	--	--	0	0.056	1.23	1.23	1.23	0.16
Nickel	--	3.00E-06	0.000042	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	4.44	4.44	4.44	0.56
PAH Total	--	--	0	0.73	16.05	16.05	16.05	2.02
Pentene	--	--	0	0.616	13.54	13.54	13.54	1.71
Phenanthrene	--	--	0	0.078	1.71	1.71	1.71	0.22
Polycyclic Organic Matter	3.30E-03	--	0.00033	--	0	0.00	0.00	0.00
Propane	--	--	0	0.358	7.87	7.87	7.87	0.99
Propene	--	--	0	1.244	27.35	27.35	27.35	3.45
Pyrene	--	--	0	0.024	0.53	0.53	0.53	0.07
Selenium	--	1.50E-05	0.00021	--	0	0.00	0.00	0.00

Pollutant	Fuel Oil			Wood		Total Emissions (lbs)	Emission Rate (lbs/hr)	Emission Rate (g/s)
	Emission Factor (lbs/1000 gal)	Emission Factor (lb/MMBTU)	Fuel Oil Emissions (lbs)	Emission Factor (lbs/tons wood)	Wood Emissions (lbs)			
2,5-Dimethyl Furan	--	--	0	0.162	7.12	7.12	7.12	0.90
2-Methyl Furan	--	--	0	0.656	28.84	28.84	28.84	3.63
Acenaphthene	--	--	0	0.01	0.44	0.44	0.44	0.06
Acenaphthylene	--	--	0	0.212	9.32	9.32	9.32	1.17
Acetylene	--	--	0	1.124	49.42	49.42	49.42	6.23
Anthracene	--	--	0	0.014	0.62	0.62	0.62	0.08
Arsenic	--	4.00E-06	0	--	0.00	0.00	0.00	0.00
Benzo(a)Anthracene	--	--	0	0.02	0.88	0.88	0.88	0.11
Benzo(a)Pyrene	--	--	0	0.004	0.18	0.18	0.18	0.02
Benzo(b)Fluoranthene	--	--	0	0.006	0.26	0.26	0.26	0.03
Benzo(e)Pyrene	--	--	0	0.012	0.53	0.53	0.53	0.07
Benzo(g,h,i)Perylene	--	--	0	0.004	0.18	0.18	0.18	0.02
Benzo(k)Fluoranthene	--	--	0	0.002	0.09	0.09	0.09	0.01
Beryllium	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Butene	--	--	0	1.192	52.41	52.41	52.41	6.60
Cadmium	--	3.00E-06	0	2.20E-05	0.00	0.00	0.00	0.00
Chromium	--	3.00E-06	0	1.00E-06	0.00	0.00	0.00	0.00
Chrysene	--	--	0	0.012	0.53	0.53	0.53	0.07
Ethane	--	--	0	1.47	64.63	64.63	64.63	8.14
Ethylene	--	--	0	4.49	197.42	197.42	197.42	24.87
Fluoranthene	--	--	0	0.02	0.88	0.88	0.88	0.11
Fluorene	--	--	0	0.024	1.06	1.06	1.06	0.13
Formaldehyde	6.10E-02	--	0	--	0.00	0.00	0.00	0.00
Furan	--	--	0	0.342	15.04	15.04	15.04	1.89
Furfural	--	--	0	0.486	21.37	21.37	21.37	2.69
i-Butane	--	--	0	0.028	1.23	1.23	1.23	0.16
Lead	--	9.00E-06	0	--	0.00	0.00	0.00	0.00
Manganese	--	6.00E-06	0	1.70E-04	0.01	0.01	0.01	0.00
Mercury	--	3.00E-06	0	--	0.00	0.00	0.00	0.00
Methyl Ethyl Ketone	--	--	0	0.29	12.75	12.75	12.75	1.61
Naphthalene	3.33E-04	--	0	0.288	12.66	12.66	12.66	1.60
n-Butane	--	--	0	0.056	2.46	2.46	2.46	0.31
Nickel	--	3.00E-06	0	1.40E-05	0.00	0.00	0.00	0.00
o-Xylene	--	--	0	0.202	8.88	8.88	8.88	1.12
PAH Total	--	--	0	0.73	32.10	32.10	32.10	4.04
Pentene	--	--	0	0.616	27.08	27.08	27.08	3.41
Phenanthrene	--	--	0	0.078	3.43	3.43	3.43	0.43
Polycyclic Organic Matter	3.30E-03	--	0	--	0.00	0.00	0.00	0.00
Propane	--	--	0	0.358	15.74	15.74	15.74	1.98
Propene	--	--	0	1.244	54.70	54.70	54.70	6.89
Pyrene	--	--	0	0.024	1.06	1.06	1.06	0.13
Selenium	--	1.50E-05	0	--	0.00	0.00	0.00	0.00

Picatinny Arsenal
Building Burn Modeling
AERMOD Summary Results
1-hr Results
Nov-11

Nov-11

											Between 7am and 3pm	Between 3mph and 17mph				
												Windspeed				
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	1-HR	210	1.79824	537823	4534673	369.02	369.02	0	9030707	7	Saturday	2.45	5.48	OK	
2	OTHER	1-HR	210	1.76945	538000	4534776	378.05	378.05	0	6013007	7	Monday	1.96	4.38		
3	OTHER	1-HR	210	1.66448	537328	4534313	363.7	363.7	0	7112507	7	Sunday	2.36	5.28		
4	OTHER	1-HR	210	1.60926	538320	4534964	392.33	392.33	0	9030507	7	Thursday	1.69	3.78		
5	OTHER	1-HR	210	1.60442	538161	4534869	380.9	380.9	0	6013007	7	Monday	1.96	4.38		
													Windspeed			
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	1-HR	408	5.03542	537442	4534450	366.05	366.05	0	6011307	7	Friday	1.64	3.67	OK	
2	OTHER	1-HR	408	4.02806	537823	4534673	369.02	369.02	0	9011907	7	Monday	1.76	3.94		
3	OTHER	1-HR	408	4.01077	537328	4534313	363.7	363.7	0	9020207	7	Monday	1.09	2.44		
4	OTHER	1-HR	408	3.87929	538132	4535096	345.78	394.1	0	10121808	8	Saturday	1.69	3.78		
5	OTHER	1-HR	408	3.83961	538000	4534776	378.05	378.05	0	10121808	8	Saturday	1.69	3.78		
													Windspeed			
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	1-HR	1362	9.33674	537777	4531336	293.6	312	0	10122708	8	Monday	11.8	26.40	OK	
2	OTHER	1-HR	1362	8.27991	537823	4534673	369.02	369.02	0	9020207	7	Monday	1.09	2.44		
3	OTHER	1-HR	1362	7.6784	537328	4534313	363.7	363.7	0	9112908	8	Sunday	1.45	3.24		
4	OTHER	1-HR	1362	7.31207	538132	4535096	345.78	394.1	0	6011307	7	Friday	1.64	3.67		
5	OTHER	1-HR	1362	7.04101	537621	4534556	369.6	369.6	0	9020207	7	Monday	1.09	2.44		
													Windspeed			
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	1-HR	1363	8.54075	537823	4534673	369.02	369.02	0	9020207	7	Monday	1.09	2.44	OK	
2	OTHER	1-HR	1363	8.36803	538132	4535096	345.78	394.1	0	6011307	7	Friday	1.64	3.67		
3	OTHER	1-HR	1363	8.20342	537777	4531336	293.6	312	0	7030607	7	Tuesday	12.26	27.42		
4	OTHER	1-HR	1363	7.71819	538161	4534869	380.9	380.9	0	10022807	7	Sunday	0.82	1.83		
5	OTHER	1-HR	1363	7.6168	537621	4534556	369.6	369.6	0	9020207	7	Monday	1.09	2.44		
													Windspeed			
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	1-HR	1373	4.58391	538161	4534869	380.9	380.9	0	6011307	7	Friday	1.64	3.67	OK	
2	OTHER	1-HR	1373	4.00119	538320	4534964	392.33	392.33	0	8021707	7	Sunday	1.72	3.85		
3	OTHER	1-HR	1373	3.51007	537442	4534450	366.05	366.05	0	9112908	8	Sunday	1.45	3.24		
4	OTHER	1-HR	1373	3.27589	537328	4534313	363.7	363.7	0	9112908	8	Sunday	1.45	3.24		
5	OTHER	1-HR	1373	3.11534	538000	4534776	378.05	378.05	0	8122708	8	Saturday	1.77	3.96		

Picatinny Arsenal
Building Burn Modeling
AERMOD Summary Results
2-hr Results
Nov-11

Between 3mph and 17mph

											Between 7am and 3pm					OK
											Windspeed					
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	2-HR	210	0.97817	538000	4534776	378.05	378.05	0	6013008	8	Monday	2.20	4.92		
2	OTHER	2-HR	210	0.90671	537823	4534673	369.02	369.02	0	9030708	8	Saturday	1.99	4.45		
3	OTHER	2-HR	210	0.86628	537328	4534313	363.7	363.7	0	7112508	8	Sunday	2.86	6.40		
4	OTHER	2-HR	210	0.85263	538161	4534869	380.9	380.9	0	6013008	8	Monday	2.20	4.92		
5	OTHER	2-HR	210	0.83694	538320	4534964	392.33	392.33	0	6021508	8	Wednesday	2.30	5.14		
											Windspeed					OK
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	2-HR	408	2.6258	537442	4534450	366.05	366.05	0	6011308	8	Friday	2.32	5.19		
2	OTHER	2-HR	408	2.01426	537823	4534673	369.02	369.02	0	9011908	8	Monday	1.93	4.32		
3	OTHER	2-HR	408	2.00755	537328	4534313	363.7	363.7	0	9020208	8	Monday	1.28	2.86		
4	OTHER	2-HR	408	1.94906	538132	4535096	345.78	394.1	0	10121808	8	Saturday	1.69	3.78		
5	OTHER	2-HR	408	1.92542	538000	4534776	378.05	378.05	0	10121808	8	Saturday	1.69	3.78		
											Windspeed					OK
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	2-HR	1362	7.99217	537777	4531336	293.6	312	0	10122708	8	Monday	11.80	26.40		
2	OTHER	2-HR	1362	6.81816	537948	4531442	303.85	310.97	0	9112808	8	Saturday	12.57	28.12		
3	OTHER	2-HR	1362	4.44978	537621	4534556	369.6	369.6	0	7121908	8	Wednesday	1.54	3.44		
4	OTHER	2-HR	1362	4.14301	537823	4534673	369.02	369.02	0	9020208	8	Monday	1.28	2.86		
5	OTHER	2-HR	1362	3.84013	537328	4534313	363.7	363.7	0	9112908	8	Sunday	1.45	3.24		
											Windspeed					OK
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	2-HR	1363	6.47026	537777	4531336	293.6	312	0	6012608	8	Thursday	9.68	21.65		
2	OTHER	2-HR	1363	5.88915	537948	4531442	303.85	310.97	0	6022408	8	Friday	11.33	25.34		
3	OTHER	2-HR	1363	4.49015	537621	4534556	369.6	369.6	0	7121908	8	Wednesday	1.54	3.44		
4	OTHER	2-HR	1363	4.32787	538194	4531683	276.6	348.28	0	8122208	8	Monday	9.29	20.78		
5	OTHER	2-HR	1363	4.30773	538132	4535096	345.78	394.1	0	6011308	8	Friday	2.32	5.19		
											Windspeed					OK
Rank	Pol	Average	Group	Conc/Dep.	East(X)	North(Y)	Elev	Hill	Flag	Time	Hour of Day	Day of Week	m/s	mph		
1	OTHER	2-HR	1373	2.4758	538172	4531499	303.02	311.75	0	9112808	8	Saturday	12.57	28.12		
2	OTHER	2-HR	1373	2.36651	538161	4534869	380.9	380.9	0	6011308	8	Friday	2.32	5.19		
3	OTHER	2-HR	1373	2.05265	538320	4534964	392.33	392.33	0	6011308	8	Friday	2.32	5.19		
4	OTHER	2-HR	1373	2.00329	537823	4534673	369.02	369.02	0	7121908	8	Wednesday	1.54	3.44		
5	OTHER	2-HR	1373	1.99538	537948	4531442	303.85	310.97	0	9122908	8	Tuesday	10.12	22.64		

Picatinny Arsenal
Building Burn Modeling
AERMOD Summary Results
Nov-11

1-hr Averaging Period Results									
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	
2009	OTHER	1-HR	210	1ST	537823	4534673	9030707	1.79824	
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	
2006	OTHER	1-HR	408	1ST	537442	4534450	6011307	5.03542	
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	
2009	OTHER	1-HR	1362	3RD	537328	4534313	9112908	7.6784	
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	
2006	OTHER	1-HR	1363	2nd	538132	4535096	6011307	8.36803	
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)	
2006	OTHER	1-HR	1373	1ST	538161	4534869	6011307	4.58391	

2-hr Averaging Period Results								
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2006	OTHER	2-HR	210	1ST	538000	4534776	6013008	0.97817
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2006	OTHER	2-HR	408	1ST	537442	4534450	6011308	2.6258
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2007	OTHER	2-HR	1362	3RD	537621	4534556	7121908	4.44978
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2007	OTHER	2-HR	1363	3RD	537621	4534556	7121908	4.49015
Year	Pol	Average	Bldg	Rank	East(X)	North(Y)	Time	Concentration at 1 g/s (ug/3)
2006	OTHER	2-HR	1373	2ND	538161	4534869	6011308	2.36651

Note: 1-hr results based on maximum 1-hr averaging period concentration from Hour 1 and Hour 2 for each building separately.

*Pollutants with NJ Inhalation Exposure Limits
Picatinny HAPS List

HAPs	Bldg 210						Bldg 408						Bldg 1362						Bldg 1363						Bldg 1373					
	Hour 1 1-hr Conc. (ug/m3)	Hour 2 1-hr Conc. (ug/m3)	MAX 1-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	Hour 1 1-hr Conc. (ug/m3)	Hour 2 1-hr Conc. (ug/m3)	MAX 1-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	Hour 1 1-hr Conc. (ug/m3)	Hour 2 1-hr Conc. (ug/m3)	MAX 1-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	Hour 1 1-hr Conc. (ug/m3)	Hour 2 1-hr Conc. (ug/m3)	MAX 1-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	Hour 1 1-hr Conc. (ug/m3)	Hour 2 1-hr Conc. (ug/m3)	MAX 1-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit
2,5-Dimethyl Furan	4.66	9.32	9.32	NA	NA	NA	1.47	2.94	2.94	NA	NA	NA	0.58	1.17	1.17	NA	NA	NA	1.14	2.28	2.28	NA	NA	NA	2.06	4.11	4.11	NA	NA	NA
2-Methyl Furan	18.87	37.74	37.74	NA	NA	NA	5.95	11.91	11.91	NA	NA	NA	2.36	4.73	4.73	NA	NA	NA	4.62	9.25	9.25	NA	NA	NA	8.33	16.66	16.66	NA	NA	NA
Acenaphthene	0.29	0.58	0.58	NA	NA	NA	0.09	0.18	0.18	NA	NA	NA	0.04	0.07	0.07	NA	NA	NA	0.07	0.14	0.14	NA	NA	NA	0.13	0.25	0.25	NA	NA	NA
Acenaphthylene	6.10	12.20	12.20	NA	NA	NA	1.92	3.85	3.85	NA	NA	NA	0.76	1.53	1.53	NA	NA	NA	1.49	2.99	2.99	NA	NA	NA	2.69	5.38	5.38	NA	NA	NA
Acetylene	32.33	64.67	64.67	NA	NA	NA	10.20	20.40	20.40	NA	NA	NA	4.05	8.10	8.10	NA	NA	NA	7.92	15.85	15.85	NA	NA	NA	14.27	28.54	28.54	NA	NA	NA
Anthracene	0.40	0.81	0.81	NA	NA	NA	0.13	0.25	0.25	NA	NA	NA	0.05	0.10	0.10	NA	NA	NA	0.10	0.20	0.20	NA	NA	NA	0.18	0.36	0.36	NA	NA	NA
Arsenic	2.54E-05	0.00E+00	2.54E-05	0.2	No	0.01%	3.55E-05	0.00E+00	3.55E-05	0.2	No	0.02%	4.06E-05	0.00E+00	4.06E-05	0.2	No	0.02%	4.43E-05	0.00E+00	4.43E-05	0.2	No	0.02%	3.23E-05	0.00E+00	3.23E-05	0.2	No	0.02%
Benzo(a)Anthracene	0.58	1.15	1.15	NA	NA	NA	0.18	0.36	0.36	NA	NA	NA	0.07	0.14	0.14	NA	NA	NA	0.14	0.28	0.28	NA	NA	NA	0.25	0.51	0.51	NA	NA	NA
Benzo(a)Pyrene	0.12	0.23	0.23	NA	NA	NA	0.04	0.07	0.07	NA	NA	NA	0.01	0.03	0.03	NA	NA	NA	0.03	0.06	0.06	NA	NA	NA	0.05	0.10	0.10	NA	NA	NA
Benzo(b)Fluoranthene	0.17	0.35	0.35	NA	NA	NA	0.05	0.11	0.11	NA	NA	NA	0.02	0.04	0.04	NA	NA	NA	0.04	0.08	0.08	NA	NA	NA	0.08	0.15	0.15	NA	NA	NA
Benzo(e)Pyrene	0.35	0.69	0.69	NA	NA	NA	0.11	0.22	0.22	NA	NA	NA	0.04	0.09	0.09	NA	NA	NA	0.08	0.17	0.17	NA	NA	NA	0.15	0.30	0.30	NA	NA	NA
Benzo(g,h,i)Perylene	0.12	0.23	0.23	NA	NA	NA	0.04	0.07	0.07	NA	NA	NA	0.01	0.03	0.03	NA	NA	NA	0.03	0.06	0.06	NA	NA	NA	0.05	0.10	0.10	NA	NA	NA
Benzo(k)Fluoranthene	0.06	0.12	0.12	NA	NA	NA	0.02	0.04	0.04	NA	NA	NA	0.01	0.01	0.01	NA	NA	NA	0.01	0.03	0.03	NA	NA	NA	0.03	0.05	0.05	NA	NA	NA
Beryllium	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA
Butene	34.29	68.58	68.58	NA	NA	NA	10.82	21.63	21.63	NA	NA	NA	4.29	8.59	8.59	NA	NA	NA	8.40	16.80	16.80	NA	NA	NA	15.14	30.27	30.27	NA	NA	NA
Cadmium	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA
Chromium	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA
Chrysene	0.35	0.69	0.69	NA	NA	NA	0.11	0.22	0.22	NA	NA	NA	0.04	0.09	0.09	NA	NA	NA	0.08	0.17	0.17	NA	NA	NA	0.15	0.30	0.30	NA	NA	NA
Ethane	42.29	84.58	84.58	NA	NA	NA	13.34	26.68	26.68	NA	NA	NA	5.29	10.59	10.59	NA	NA	NA	10.36	20.72	20.72	NA	NA	NA	18.66	37.33	37.33	NA	NA	NA
Ethylene	129.17	258.33	258.33	NA	NA	NA	40.75	81.49	81.49	NA	NA	NA	16.17	32.34	32.34	NA	NA	NA	31.65	63.30	63.30	NA	NA	NA	57.01	114.02	114.02	NA	NA	NA
Fluoranthene	0.58	1.15	1.15	NA	NA	NA	0.18	0.36	0.36	NA	NA	NA	0.07	0.14	0.14	NA	NA	NA	0.14	0.28	0.28	NA	NA	NA	0.25	0.51	0.51	NA	NA	NA
Fluorene	0.69	1.38	1.38	NA	NA	NA	0.22	0.44	0.44	NA	NA	NA	0.09	0.17	0.17	NA	NA	NA	0.17	0.34	0.34	NA	NA	NA	0.30	0.61	0.61	NA	NA	NA
Formaldehyde	2.76E-03	0.00E+00	2.76E-03	55	No	0.01%	3.87E-03	0.00E+00	3.87E-03	55	No	0.01%	4.43E-03	0.00E+00	4.43E-03	55	No	0.01%	4.82E-03	0.00E+00	4.82E-03	55	No	0.01%	3.52E-03	0.00E+00	3.52E-03	55	No	0.01%
Furan	9.84	19.68	19.68	NA	NA	NA	3.10	6.21	6.21	NA	NA	NA	1.23	2.46	2.46	NA	NA	NA	2.41	4.82	4.82	NA	NA	NA	4.34	8.68	8.68	NA	NA	NA
Furfural	13.98	27.96	27.96	NA	NA	NA	4.41	8.82	8.82	NA	NA	NA	1.75	3.50	3.50	NA	NA	NA	3.43	6.85	6.85	NA	NA	NA	6.17	12.34	12.34	NA	NA	NA
i-Butane	0.81	1.61	1.61	NA	NA	NA	0.25	0.51	0.51	NA	NA	NA	0.10	0.20	0.20	NA	NA	NA	0.20	0.39	0.39	NA	NA	NA	0.36	0.71	0.71	NA	NA	NA
Lead	5.71E-05	0.00E+00	5.71E-05	NA	NA	NA	7.99E-05	0.00E+00	7.99E-05	NA	NA	NA	9.14E-05	0.00E+00	9.14E-05	NA	NA	NA	9.96E-05	0.00E+00	9.96E-05	NA	NA	NA	7.28E-05	0.00E+00	7.28E-05	NA	NA	NA
Manganese	4.93E-03	9.78E-03	9.78E-03	NA	NA	NA	1.60E-03	3.09E-03	3.09E-03	NA	NA	NA	6.73E-04	1.22E-03	1.22E-03	NA	NA	NA	1.26E-03	2.40E-03	2.40E-03	NA	NA	NA	2.21E-03	4.32E-03	4.32E-03	NA	NA	NA
Mercury	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA
Methyl Ethyl Ketone	8.34	16.69	16.69	13000	No	0.13%	2.63	5.26	5.26	13000	No	0.04%	1.04	2.09	2.09	13000	No	0.02%	2.04	4.09	4.09	13000	No	0.03%	3.68	7.36	7.36	13000	No	0.06%
Naphthalene	8.29	16.57	16.57	NA	NA	NA	2.61	5.23	5.23	NA	NA	NA	1.04	2.07	2.07	NA	NA	NA	2.03	4.06	4.06	NA	NA	NA	3.66	7.31	7.31	NA	NA	NA
n-Butane	1.61	3.22	3.22	NA	NA	NA	0.51	1.02	1.02	NA	NA	NA	0.20	0.40	0.40	NA	NA	NA	0.39	0.79	0.79	NA	NA	NA	0.71	1.42	1.42	NA	NA	NA
Nickel	4.22E-04	8.05E-04	8.05E-04	6	No	0.01%	1.54E-04	2.54E-04	2.54E-04	6	No	0.00%	8.09E-05	1.01E-04	1.01E-04	6	No	0.00%	1.32E-04	1.97E-04	1.97E-04	6	No	0.00%	2.02E-04	3.56E-04	3.56E-04	6	No	0.01%
o-Xylene	5.81	11.62	11.62	22000	No	0.05%	1.83	3.67	3.67	22000	No	0.02%	0.73	1.46	1.46	22000	No	0.01%	1.42	2.85	2.85	22000	No	0.01%	2.56	5.13	5.13	22000	No	0.02%
PAH Total	21.00	42.00	42.00	NA	NA	NA	6.62	13.25	13.25	NA	NA	NA	2.63	5.26	5.26	NA	NA	NA	5.15	10.29	10.29	NA	NA	NA	9.27	18.54	18.54	NA	NA	NA
Pentene	17.72	35.44	35.44	NA	NA	NA	5.59	11.18	11.18	NA	NA	NA	2.22	4.44	4.44	NA	NA	NA	4.34	8.68	8.68	NA	NA	NA	7.82	15.64	15.64	NA	NA	NA
Phenanthrene	2.24	4.49	4.49	NA	NA	NA	0.71	1.42	1.42	NA	NA	NA	0.28	0.56	0.56	NA	NA	NA	0.55	1.10	1.10	NA	NA	NA	0.99	1.98	1.98	NA	NA	NA
Polycyclic Organic Matter	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA
Propane	10.30	20.60	20.60	NA	NA	NA	3.25	6.50	6.50	NA	NA	NA	1.29	2.58	2.58	NA	NA	NA	2.52	5.05	5.05	NA	NA	NA	4.55	9.09	9.09	NA	NA	NA
Propene	35.79	71.57	71.57	NA	NA	NA	11.29	22.58	22.58	NA	NA	NA	4.48	8.96	8.96	NA	NA	NA	8.77	17.54	17.54	NA	NA	NA	15.80	31.59	31.59	NA	NA	NA
Pyrene	0.69	1.38	1.38	NA	NA	NA	0.22	0.44	0.44	NA	NA	NA	0.09	0.17	0.17	NA	NA	NA	0.17	0.34	0.34	NA	NA	NA	0.30	0.61	0.61	NA	NA	NA
Selenium	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA

*Also has NJ Inhalation Exposure Limit

Note: 8-hr results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 8 for each building separately

*Pollutants with NJ Inhalation Exposure Limits
Picatinny HAPS List

HAPS	Bldg 210				Bldg 408				Bldg 1362				Bldg 1363				Bldg 1373			
	8-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	8-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	8-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	8-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	8-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit
2,5-Dimethyl Furan	0.95	NA	NA	NA	0.29	NA	NA	NA	0.13	NA	NA	NA	0.23	NA	NA	NA	0.40	NA	NA	NA
2-Methyl Furan	3.85	NA	NA	NA	1.16	NA	NA	NA	0.51	NA	NA	NA	0.93	NA	NA	NA	1.61	NA	NA	NA
Acenaphthene	0.06	NA	NA	NA	0.02	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Acenaphthylene	1.24	NA	NA	NA	0.38	NA	NA	NA	0.17	NA	NA	NA	0.30	NA	NA	NA	0.52	NA	NA	NA
Acetylene	6.60	NA	NA	NA	1.99	NA	NA	NA	0.88	NA	NA	NA	1.59	NA	NA	NA	2.76	NA	NA	NA
Anthracene	0.08	NA	NA	NA	0.02	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA
Arsenic	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Benzo(a)Anthracene	0.12	NA	NA	NA	0.04	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA	0.05	NA	NA	NA
Benzo(a)Pyrene	0.02	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Benzo(b)Fluoranthene	0.04	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Benzo(e)Pyrene	0.07	NA	NA	NA	0.02	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA
Benzo(g,h,i)Perylene	0.02	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Benzo(k)Fluoranthene	0.01	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Beryllium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Butene	6.99	NA	NA	NA	2.12	NA	NA	NA	0.93	NA	NA	NA	1.69	NA	NA	NA	2.93	NA	NA	NA
Cadmium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Chromium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Chrysene	0.07	NA	NA	NA	0.02	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA
Ethane	8.63	NA	NA	NA	2.61	NA	NA	NA	1.15	NA	NA	NA	2.08	NA	NA	NA	3.61	NA	NA	NA
Ethylene	26.35	NA	NA	NA	7.97	NA	NA	NA	3.51	NA	NA	NA	6.37	NA	NA	NA	11.04	NA	NA	NA
Fluoranthene	0.12	NA	NA	NA	0.04	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA	0.05	NA	NA	NA
Fluorene	0.14	NA	NA	NA	0.04	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA	0.06	NA	NA	NA
Formaldehyde	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Furan	2.01	NA	NA	NA	0.61	NA	NA	NA	0.27	NA	NA	NA	0.49	NA	NA	NA	0.84	NA	NA	NA
Furfural	2.85	NA	NA	NA	0.86	NA	NA	NA	0.38	NA	NA	NA	0.69	NA	NA	NA	1.19	NA	NA	NA
i-Butane	0.16	NA	NA	NA	0.05	NA	NA	NA	0.02	NA	NA	NA	0.04	NA	NA	NA	0.07	NA	NA	NA
Lead	3.88E-06	NA	NA	NA	5.21E-06	NA	NA	NA	6.62E-06	NA	NA	NA	6.68E-06	NA	NA	NA	4.70E-06	NA	NA	NA
Manganese	1.00E-03	0.17	No	0.59%	3.05E-04	0.17	No	0.18%	1.37E-04	0.17	No	0.08%	2.46E-04	0.17	No	0.14%	4.21E-04	0.17	No	0.25%
Mercury	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Methyl Ethyl Ketone	1.70	NA	NA	NA	0.51	NA	NA	NA	0.23	NA	NA	NA	0.41	NA	NA	NA	0.71	NA	NA	NA
Naphthalene	1.69	NA	NA	NA	0.51	NA	NA	NA	0.23	NA	NA	NA	0.41	NA	NA	NA	0.71	NA	NA	NA
n-Butane	0.33	NA	NA	NA	0.10	NA	NA	NA	0.04	NA	NA	NA	0.08	NA	NA	NA	0.14	NA	NA	NA
Nickel	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
o-Xylene	1.19	NA	NA	NA	0.36	NA	NA	NA	0.16	NA	NA	NA	0.29	NA	NA	NA	0.50	NA	NA	NA
PAH Total	4.28	NA	NA	NA	1.30	NA	NA	NA	0.57	NA	NA	NA	1.04	NA	NA	NA	1.79	NA	NA	NA
Pentene	3.61	NA	NA	NA	1.09	NA	NA	NA	0.48	NA	NA	NA	0.87	NA	NA	NA	1.51	NA	NA	NA
Phenanthrene	0.46	NA	NA	NA	0.14	NA	NA	NA	0.06	NA	NA	NA	0.11	NA	NA	NA	0.19	NA	NA	NA
Polycyclic Organic Matter	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Propane	2.10	NA	NA	NA	0.64	NA	NA	NA	0.28	NA	NA	NA	0.51	NA	NA	NA	0.88	NA	NA	NA
Propene	7.30	NA	NA	NA	2.21	NA	NA	NA	0.97	NA	NA	NA	1.76	NA	NA	NA	3.06	NA	NA	NA
Pyrene	0.14	NA	NA	NA	0.04	NA	NA	NA	0.02	NA	NA	NA	0.03	NA	NA	NA	0.06	NA	NA	NA
Selenium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA

*Also has NJ Inhalation Exposure Limit

Note: 24-hr results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 24 for each building separately

*Pollutants with NJ Inhalation Exposure Limits
Picatinny HAPS List

HAPS	Bldg 210				Bldg 408				Bldg 1362				Bldg 1363				Bldg 1373			
	24-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	24-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	24-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	24-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit	24-hr Conc. (ug/m3)	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit
2,5-Dimethyl Furan	0.32	NA	NA	NA	0.10	NA	NA	NA	0.04	NA	NA	NA	0.08	NA	NA	NA	0.13	NA	NA	NA
2-Methyl Furan	1.28	NA	NA	NA	0.39	NA	NA	NA	0.17	NA	NA	NA	0.31	NA	NA	NA	0.54	NA	NA	NA
Acenaphthene	0.02	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA
Acenaphthylene	0.41	NA	NA	NA	0.13	NA	NA	NA	0.06	NA	NA	NA	0.10	NA	NA	NA	0.17	NA	NA	NA
Acetylene	2.20	NA	NA	NA	0.66	NA	NA	NA	0.29	NA	NA	NA	0.53	NA	NA	NA	0.92	NA	NA	NA
Anthracene	0.03	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Arsenic	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Benzo(a)Anthracene	0.04	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Benzo(a)Pyrene	0.01	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Benzo(b)Fluoranthene	0.01	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Benzo(e)Pyrene	0.02	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Benzo(g,h,i)Perylene	0.01	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Benzo(k)Fluoranthene	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Beryllium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Butene	2.33	NA	NA	NA	0.71	NA	NA	NA	0.31	NA	NA	NA	0.56	NA	NA	NA	0.98	NA	NA	NA
Cadmium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Chromium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Chrysene	0.02	NA	NA	NA	0.01	NA	NA	NA	0.00	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA
Ethane	2.88	NA	NA	NA	0.87	NA	NA	NA	0.38	NA	NA	NA	0.69	NA	NA	NA	1.20	NA	NA	NA
Ethylene	8.78	NA	NA	NA	2.66	NA	NA	NA	1.17	NA	NA	NA	2.12	NA	NA	NA	3.68	NA	NA	NA
Fluoranthene	0.04	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Fluorene	0.05	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Formaldehyde	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Furan	0.67	NA	NA	NA	0.20	NA	NA	NA	0.09	NA	NA	NA	0.16	NA	NA	NA	0.28	NA	NA	NA
Furfural	0.95	NA	NA	NA	0.29	NA	NA	NA	0.13	NA	NA	NA	0.23	NA	NA	NA	0.40	NA	NA	NA
i-Butane	0.05	NA	NA	NA	0.02	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Lead	1.29E-06	0.10	No	0.00%	1.74E-06	0.10	No	0.00%	2.21E-06	0.10	No	0.00%	2.23E-06	0.10	No	0.00%	1.57E-06	0.10	No	0.00%
Manganese	0.00	NA	NA	NA	1.02E-04	NA	NA	NA	4.58E-05	NA	NA	NA	8.19E-05	NA	NA	NA	1.40E-04	NA	NA	NA
Mercury	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Methyl Ethyl Ketone	0.57	NA	NA	NA	0.17	NA	NA	NA	0.08	NA	NA	NA	0.14	NA	NA	NA	0.24	NA	NA	NA
Naphthalene	0.56	NA	NA	NA	0.17	NA	NA	NA	0.08	NA	NA	NA	0.14	NA	NA	NA	0.24	NA	NA	NA
n-Butane	0.11	NA	NA	NA	0.03	NA	NA	NA	0.01	NA	NA	NA	0.03	NA	NA	NA	0.05	NA	NA	NA
Nickel	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
o-Xylene	0.40	NA	NA	NA	0.12	NA	NA	NA	0.05	NA	NA	NA	0.10	NA	NA	NA	0.17	NA	NA	NA
PAH Total	1.43	NA	NA	NA	0.43	NA	NA	NA	0.19	NA	NA	NA	0.35	NA	NA	NA	0.60	NA	NA	NA
Pentene	1.20	NA	NA	NA	0.36	NA	NA	NA	0.16	NA	NA	NA	0.29	NA	NA	NA	0.50	NA	NA	NA
Phenanthrene	0.15	NA	NA	NA	0.05	NA	NA	NA	0.02	NA	NA	NA	0.04	NA	NA	NA	0.06	NA	NA	NA
Polycyclic Organic Matter	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA
Propane	0.70	NA	NA	NA	0.21	NA	NA	NA	0.09	NA	NA	NA	0.17	NA	NA	NA	0.29	NA	NA	NA
Propene	2.43	NA	NA	NA	0.74	NA	NA	NA	0.32	NA	NA	NA	0.59	NA	NA	NA	1.02	NA	NA	NA
Pyrene	0.05	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.01	NA	NA	NA	0.02	NA	NA	NA
Selenium	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	NA	NA	NA

*Also has NJ Inhalation Exposure Limit

Note: Annual results based on the sum of 2-hr averaging time for Hour 1 and 2 divided by 8760 for all buildings combined.

*Pollutants with NJ Inhalation Exposure Limits
Picatinny HAPS List

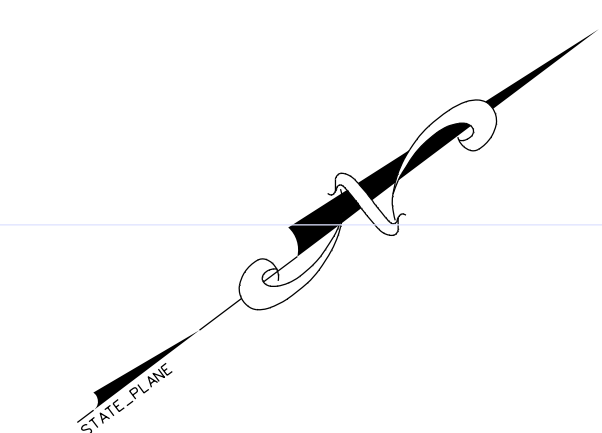
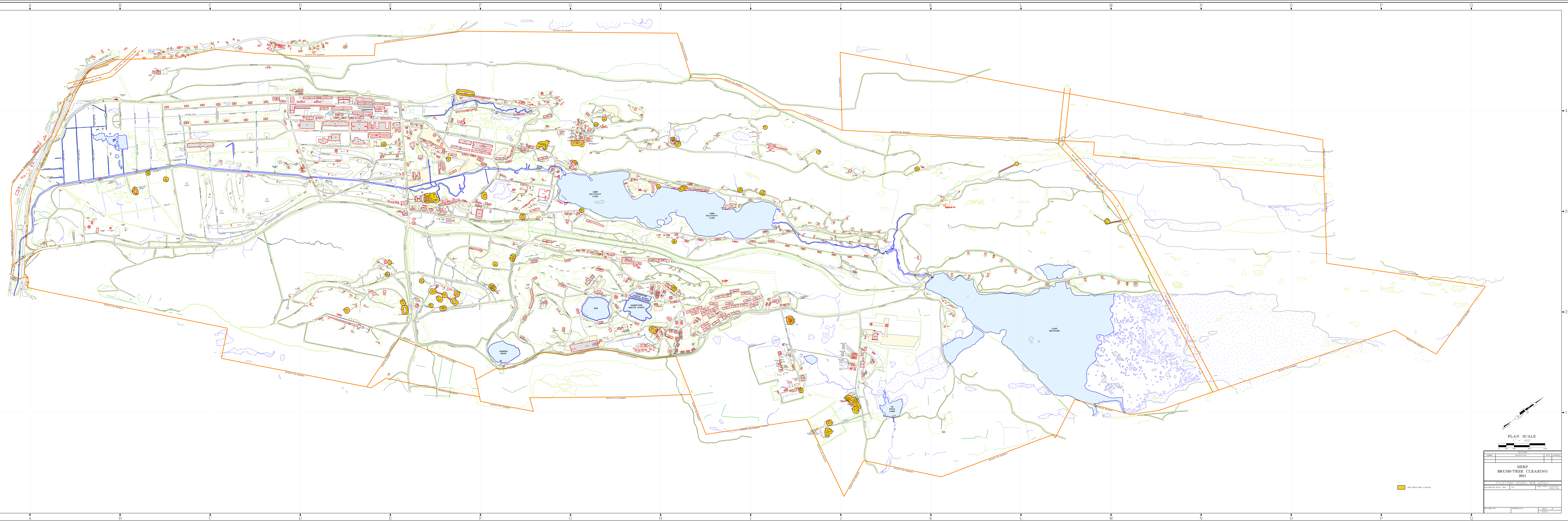
HAPS	Annual Conc. (ug/m3)								
	Bldg 210	Bldg 408	Bldg 1362	Bldg 1363	Bldg 1373	Total	NJ Inhalation Exposure Conc.	Exceed NJ Inhalation Exposure Conc.? (Y/N)	% of NJ Inhalation Exposure Limit
2,5-Dimethyl Furan	8.68E-04	2.63E-04	1.16E-04	2.10E-04	3.64E-04	1.82E-03	NA	NA	NA
2-Methyl Furan	3.52E-03	1.06E-03	4.69E-04	8.50E-04	1.47E-03	7.37E-03	NA	NA	NA
Acenaphthene	5.36E-05	1.62E-05	7.15E-06	1.30E-05	2.24E-05	1.12E-04	NA	NA	NA
Acenaphthylene	1.14E-03	3.44E-04	1.52E-04	2.75E-04	4.76E-04	2.38E-03	NA	NA	NA
Acetylene	6.02E-03	1.82E-03	8.03E-04	1.46E-03	2.52E-03	1.26E-02	NA	NA	NA
Anthracene	7.50E-05	2.27E-05	1.00E-05	1.81E-05	3.14E-05	1.57E-04	NA	NA	NA
Arsenic	1.58E-09	2.11E-09	2.69E-09	2.71E-09	1.91E-09	1.10E-08	0.015	No	0.00%
Benzo(a)Anthracene	1.07E-04	3.24E-05	1.43E-05	2.59E-05	4.49E-05	2.25E-04	NA	NA	NA
Benzo(a)Pyrene	2.14E-05	6.48E-06	2.86E-06	5.18E-06	8.98E-06	4.49E-05	NA	NA	NA
Benzo(b)Fluoranthene	3.22E-05	9.72E-06	4.29E-06	7.77E-06	1.35E-05	6.74E-05	NA	NA	NA
Benzo(e)Pyrene	6.43E-05	1.94E-05	8.58E-06	1.55E-05	2.69E-05	1.35E-04	NA	NA	NA
Benzo(g,h,i)Perylene	2.14E-05	6.48E-06	2.86E-06	5.18E-06	8.98E-06	4.49E-05	NA	NA	NA
Benzo(k)Fluoranthene	1.07E-05	3.24E-06	1.43E-06	2.59E-06	4.49E-06	2.25E-05	NA	NA	NA
Beryllium	1.18E-09	1.59E-09	2.02E-09	2.03E-09	1.43E-09	8.25E-09	0.02	No	0.00%
Butene	6.39E-03	1.93E-03	8.52E-04	1.54E-03	2.68E-03	1.34E-02	NA	NA	NA
Cadmium	1.19E-07	3.72E-08	1.77E-08	3.05E-08	5.08E-08	2.55E-07	0.02	No	0.00%
Chromium	6.54E-09	3.21E-09	2.73E-09	3.33E-09	3.67E-09	1.95E-08	NA	NA	NA
Chrysene	6.43E-05	1.94E-05	8.58E-06	1.55E-05	2.69E-05	1.35E-04	NA	NA	NA
Ethane	7.88E-03	2.38E-03	1.05E-03	1.90E-03	3.30E-03	1.65E-02	NA	NA	NA
Ethylene	2.41E-02	7.28E-03	3.21E-03	5.82E-03	1.01E-02	5.04E-02	NA	NA	NA
Fluoranthene	1.07E-04	3.24E-05	1.43E-05	2.59E-05	4.49E-05	2.25E-04	NA	NA	NA
Fluorene	1.29E-04	3.89E-05	1.72E-05	3.11E-05	5.39E-05	2.70E-04	NA	NA	NA
Formaldehyde	1.72E-07	2.30E-07	2.93E-07	2.95E-07	2.08E-07	1.20E-06	9	No	0.00%
Furan	1.83E-03	5.54E-04	2.44E-04	4.43E-04	7.68E-04	3.84E-03	NA	NA	NA
Furfural	2.60E-03	7.88E-04	3.47E-04	6.30E-04	1.09E-03	5.46E-03	50	No	0.01%
i-Butane	1.50E-04	4.54E-05	2.00E-05	3.63E-05	6.29E-05	3.15E-04	NA	NA	NA
Lead	3.55E-09	4.76E-09	6.05E-09	6.10E-09	4.29E-09	2.47E-08	NA	NA	NA
Manganese	9.13E-07	2.79E-07	1.26E-07	2.24E-07	3.84E-07	1.93E-06	0.05	No	0.00%
Mercury	1.18E-09	1.59E-09	2.02E-09	2.03E-09	1.43E-09	8.25E-09	0.3	No	0.00%
Methyl Ethyl Ketone	1.55E-03	4.70E-04	2.07E-04	3.76E-04	6.51E-04	3.26E-03	5000	No	0.00%
Naphthalene	1.54E-03	4.67E-04	2.06E-04	3.73E-04	6.47E-04	3.24E-03	3.00	No	0.11%
n-Butane	3.00E-04	9.08E-05	4.00E-05	7.25E-05	1.26E-04	6.29E-04	NA	NA	NA
Nickel	7.62E-08	2.43E-08	1.20E-08	2.02E-08	3.29E-08	1.66E-07	0.05	No	0.00%
o-Xylene	1.08E-03	3.27E-04	1.44E-04	2.62E-04	4.53E-04	2.27E-03	100	No	0.00%
PAH Total	3.91E-03	1.18E-03	5.22E-04	9.46E-04	1.64E-03	8.20E-03	NA	NA	NA
Pentene	3.30E-03	9.98E-04	4.40E-04	7.98E-04	1.38E-03	6.92E-03	NA	NA	NA
Phenanthrene	4.18E-04	1.26E-04	5.58E-05	1.01E-04	1.75E-04	8.76E-04	NA	NA	NA
Polycyclic Organic Matter	9.29E-09	1.25E-08	1.58E-08	1.60E-08	1.12E-08	6.48E-08	NA	NA	NA
Propane	1.92E-03	5.80E-04	2.56E-04	4.64E-04	8.04E-04	4.02E-03	NA	NA	NA
Propene	6.67E-03	2.02E-03	8.89E-04	1.61E-03	2.79E-03	1.40E-02	NA	NA	NA
Pyrene	1.29E-04	3.89E-05	1.72E-05	3.11E-05	5.39E-05	2.70E-04	NA	NA	NA
Selenium	5.91E-09	7.93E-09	1.01E-08	1.02E-08	7.15E-09	4.12E-08	20	No	0.00%

*Also has NJ Inhalation Exposure Limit

*Also has NJ Inhalation Exposure Limit

*Also has NJ Inhalation Exposure Limit

APPENDIX F
DERP BRUSH/TREE CLEARING 2011



PLAN SCALE

$$1^N = 400'$$

0		306"		400"		500"		1200"	
PROVISIONS									
NUMBER		DESCRIPTION				DATE		APPROVED	
<p style="text-align: center;">DERP BRUSH-TREE CLEARING 2011</p>									
<p style="text-align: center;">PICATINNY COVER, NEW JERSEY</p>									
ENGINEERING BLOCK 1002		1-0-				SHEET DATE: 10/27/2011		BY: JH-IM	
<p>REVIEWED BY: _____</p> <p>APPROVED BY: _____</p> <p>SHEET: 01</p>									

APPENDIX G
FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT

Implement the Facilities Reduction Program and the Defense Environmental Restoration Program

Picatinny Arsenal, New Jersey
December 2011

1. Proposed Action

The Proposed Action is to implement the Facilities Reduction Program (FRP) and the Defense Environmental Restoration Program (DERP) at Picatinny Arsenal. The Proposed Action includes the assessment, remediation, and/or demolition of up to 104 buildings at Picatinny Arsenal, New Jersey. These buildings slated for remediation and/or demolition are spread throughout the installation and have a varied history of use. Through examination of the buildings usage history, it has been determined that 82 of the buildings have a history of explosives use. These 82 buildings would be assessed for explosives contamination and, where necessary, remediated. The remaining 22 buildings have no history of explosives use and would be demolished after removal of asbestos-containing materials (ACM) and other regulated materials (ORM) by a demolition contractor.

For the 82 Buildings with a history of explosive usage, further assessment would be required to determine if there is a need for explosives remediation of the building and associated infrastructure. If the assessment determines that a structure is not explosively contaminated, the demolition of the structure would be accomplished (for the buildings slated for demolition) by conventional demolition. If explosives contamination is identified, remediation of the structure would be accomplished to the level necessary prior to demolition by either conventional means or by open burning methods. The buildings would be surveyed for ACM and ORM and these materials would be remediated prior to demolition.

Picatinny has prepared a Programmatic Environmental Assessment (PEA) to analyze the potential impacts from implementing this action. It is important to note that a PEA is a document of broad and general scope. It must be flexible, and it is not a fixed blueprint. While forms of remediation and their potential impacts are presented in the PEA, there is no certainty as to which buildings would require what type of remediation. It is possible that aspects of the Proposed Action might be modified; Picatinny would review the Final PEA to determine if the Proposed Action has changed significantly or if there is new environmental information that would warrant additional environmental review. If appropriate, Picatinny would consider additional environmental documentation at that time.

2. Alternatives

Two alternatives to the Proposed Action were considered in this assessment. One alternative would involve conducting remediation activities as described under the Proposed Action, but rather than demolishing the subject buildings for subsequent redevelopment of the property, Picatinny would renovate the buildings for reuse. This alternative was eliminated from further consideration because it is not economically feasible. Thus, only the No Action alternative was considered in detail in this PEA.

3. Anticipated Environmental Impacts

The purpose of this project is to assess, remediate, and/or demolish 104 buildings at Picatinny. These buildings are spread throughout the installation and have a varied usage history. The buildings have been unused for various lengths of time ranging from several years to decades. The buildings are in varied stages of disrepair and in some cases, the structural integrity of the buildings is poor causing the potential hazardous conditions. As a result of manufacturing operations in the subject buildings over many decades, the potential for contamination in building interior, exterior, and equipment exists. Demolition would remove potential hazards associated with these buildings including hazards from ACM, ORM, explosives contamination, and structural condition.

The Proposed Action would have minor to moderate adverse impacts on air quality, hazardous waste and hazardous materials, and solid waste. Proposed activities could involve minor incursions into wetlands transition areas which may require a permit issued by the New Jersey Department of Environmental Protection. In the long term, there would be a beneficial effect on wetlands and water resources due to a decrease in impervious area with the removal of 104 buildings.

There would be a short-term and minor adverse impact on traffic and transportation, and health and safety. During burn or demolition operations which require explosive safety distance arcs, on post and off post roads will have to be temporarily closed. These road closures will be intermittent and short term. The installation's road network can accommodate the projected short-term increase in traffic volume during proposed activities. Adjacent off-post roadways would be further stressed over the short term, but the effect may largely be mitigated by adjusting the timing of traffic signals. Open burn activities would occur during daylight hours (before 2:00 PM) on weekends to minimize any potential effects to the Picatinny workforce and surrounding community.

The Proposed Action would likely have short-term negligible to minor adverse impacts on soil contamination, soil erosion, biological resources, and cultural resources. No impacts to floodplains are anticipated as a result of activities under the Proposed Action.

Mitigation measures have been developed and will be implemented to minimize short- and long-term impacts to the Proposed Action. These BMPs and mitigation measures are summarized below:

Summary of Best Management Practices and Mitigation Measures

Resource Area	Mitigation Measures under Proposed Action
Land Use	<ul style="list-style-type: none"> • No environmental commitments
Air Quality	<ul style="list-style-type: none"> • Contractors will use heavy construction equipment with emissions control technology to meet New Jersey Emissions Standards. • Restrict engine idling to 10-minute interval maximums. • Approved non-toxic soil binders will be applied to active unpaved roadways, unpaved staging areas, and unpaved parking areas throughout construction, to reduce fugitive dust emissions. • Water disturbed areas of active construction sites at least three times per day (more often if uncontrolled fugitive dust is noted.) • Schedule construction delivery traffic outside of peak-hour traffic patterns for the local community, and other construction traffic will be minimized to the extent feasible • Building burns will occur during daylight hours at wind speeds between 3 miles per hour and 17 miles per hour.
Water Resources	<ul style="list-style-type: none"> • Implement erosion and sediment control practices such as sediment trapping and filtering, following the details of the project's Erosion and Sediment Control Plan (E&SCP). • Use silt fencing, storm drain protection, straw mulching, and reseed bare surfaces. • All water used in decontamination activities will be captured and tested for contamination. • Toxic or hazardous chemicals will not be applied to soil or vegetation as part of interim measures actions. • All land-disturbing activities will be planned and conducted to minimize the size of the area to be exposed at any one time and length of time of exposure. • After building demolition, best storm water management practices will be used and whenever possible, same day cleanup will be performed to minimize potential groundwater impact.

Resource Area	Mitigation Measures under Proposed Action
Soil Contamination	<ul style="list-style-type: none"> • Land disturbance in contaminated areas will be minimized, and sediment erosion control measures will be performed to minimize the potential for spreading contaminated soil. • Contractors will take post-excavation samples to ensure any potential soil contamination is appropriately documented so it can be addressed by the installation restoration program or other appropriate program.
Soil Erosion	<ul style="list-style-type: none"> • Soil erosion and siltation control measures will include the use of silt fencing, straw bales, and/or hydro-mulching in and adjacent to construction areas. • Installation contractors will be responsible for complying with standard operating procedures and applicable health and safety regulations.
Wetlands	<ul style="list-style-type: none"> • The proposed project will comply with federal, state, and local regulations governing construction activities. • An E&SCP will be submitted to Morris County and certified prior to proposed remediation and demolition activities. • Review pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the proposed activities will not have a major impact on wetlands. • Spill prevention, control, and countermeasure procedures will reduce the potential for any hazardous substances used during construction to be discharged to wetlands. • Apply for an individual permit under New Jersey's Freshwater Wetlands Act if there were any impacts to wetlands. • Consult with state and federal agencies as part of the New Jersey Department of Environmental Protection permitting process. Picatinny will be subject to the special conditions and restrictions of the permit. • Remove hazardous materials from a building before demolishing. • Upon project completion, ensure no mounding and sufficient soil coverage for revegetation of indigenous species. • Properly stabilize all disturbed areas. • No clearing, cutting, or removal of vegetation in a transition area except for vegetation within a buffer of up to 50 feet of the structure if such a disturbance is determined necessary to facilitate the remediation and/or removal of the building. • Replant all vegetated areas temporarily disturbed within the riparian zone with indigenous, non-invasive species upon project completion.
Floodplains	<ul style="list-style-type: none"> • No environmental commitments

Resource Area	Mitigation Measures under Proposed Action
Biological Resources	<ul style="list-style-type: none"> • Restore disturbed areas and replace with native species or similar vegetation species after completion of construction activities. • Obtain Clean Water Act Sections 404 and 401 permits as required to mitigate riparian corridors and compensate for vegetation loss.
Cultural Resources	<ul style="list-style-type: none"> • Develop Historic Narratives with SHPO for all historic property demolitions prior to their final demolition as mitigated through the Real Property Master Plan and Facility Reduction Program Programmatic Agreement.
Traffic and Transportation	<ul style="list-style-type: none"> • Prepare construction schedules for distribution to Picatinny employees prior to proposed activities. • Provide specific construction routes to contractors to minimize conflicts with routine vehicular traffic. • Open burn activities would occur during daylight hours (before 2:00 PM) on weekends to minimize any potential effects to the Picatinny workforce and surrounding community.
Health and Safety	<ul style="list-style-type: none"> • Identify the construction zone and prohibit access to unauthorized individuals. • The use of cranes and other high-profile equipment will require a “spotter” when operating near any overhead hazards. • To minimize vehicle accidents, construction personnel will direct heavy vehicles entering and exiting the site. • Picatinny has also incorporated stringent safety standards and procedures into day-to-day operations.
Hazardous Materials and Hazardous Wastes	<ul style="list-style-type: none"> • Contractors will be responsible for managing hazardous materials in accordance with federal and state regulations. • Hazardous waste handling and storage will conform to current Hazardous Waste Management Plan and BMPs for Spill Prevention and Control and include spill response and notification procedures. • Conduct demolition activities in accordance with the Asbestos Management Plan, Lead-based Paint Management Plan, and Army Regulations and policies. • All construction personnel will follow a worker protection program that is fully addressed in the Accident Prevention Plan that has been developed for Picatinny

Resource Area	Mitigation Measures under Proposed Action
Solid Waste	<ul style="list-style-type: none">• Contractors are required to recycle a minimum of 50% of construction and demolition waste.• PCB Bulk Product Waste and or PCB Contamination will be disposed of in accordance with TSCA regulations.

4. Conclusion

Based on adherence to the mitigation measures and conditions contained in the PEA, the conclusion has been reached that implementing the FRP and DERP at Picatinny Arsenal through assessing, remediating, and/or demolishing 104 buildings would not constitute a major federal action significantly affecting the quality of the human environment within the meaning of Section 102 (2) (c) of the National Environmental Policy Act. Accordingly, preparation of an Environmental Impact Statement is not required. Therefore, the draft Finding of No Significant Impact (FONSI) is being made available for public review and comment for 30 days. A final decision would be rendered upon review and due consideration of the comments received.

5. Public Availability

The PEA and this draft FONSI for the Proposed Action are available for public inspection at the Public Affairs Office, Picatinny Arsenal, and Rockaway Township Public Library. General questions concerning this PEA can be directed to Mr. Pete Rowland. Written comments should be mailed to Mr. Rowland at, Public Affairs Office, AMSRD-AAR-AO, Picatinny Arsenal, NJ 07806-5000. Public comment on this FONSI will be accepted for a period 30 days from the date of this notice.

Approved by:

Herb Koehler
LTC, LG
Garrison Commander

Date